FEDERAL POLICY ON LAND USE

GUIDELINES MANUAL

"A TOOL TO ASSIST IN IMPLEMENTING THE FEDERAL POLICY ON LAND USE"

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FOREWORD

Relationships between the Federal Policy on Land Use and the Environmental Assessment and Review Process

This document is designed to complement the Federal Environmental Assessment and Review Process (EARP). The manual is a tool to assist federal program managers and other decision-makers in implementing the Federal Policy on Land Use. Managers can use the manual to identify the potential land-use impacts that their programs, projects or policies could have at the earliest stage of program/project planning -- that is, even prior to the selection of a site for a project. Thus, the manual encourages the identification of potential land-use impacts at an early phase of planning which could then be used as input to the screening and assessment, as prescribed by EARP. However, this manual contains information which could be useful for federal managers and other decision-makers throughout all stages of EARP, including follow-up.

OUTLINE OF REPORT

Part One, GENERAL APPROACH TO SCREENING LAND-USE IMPACTS (p. 3-16), is a "blueprint" for departmental implementation of the Federal Policy on Land Use (FPLU). The outlined procedures may be used in conjunction with departmental environmental screening processes, or, if appropriate, be incorporated directly into existing, environmental or land-use screening procedures.

Part Two, SPECIFIC ELABORATIONS ON THE FPLU GUIDELINES (p. 17-79), provides guidance for assessing the impacts federal programs or policies could have on the land uses as specified in the ten FPLU Guidelines.

Part Three, APPENDICES ("the Yellow Pages"), provides federal, provincial and territorial contacts and additional information sources for the ten land uses.

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INTRODUCTION

The Federal Policy on Land Use (FPLU) was approved by the federal Cabinet in 1980. The goal of the Policy is:

> **to ensure that federal policies and programs and the management of federal lands contribute to the wise use of Canada's land resources.**

All federal managers are required to implement the FPLU and apply the ten land-use guidelines in implementing their policies, programs, and other activities, as well as in managing their landholdings. The guidelines address the following land concerns: 1. Urban Land; 2. Agricultural Land; 3. Forest Land; 4. Non-Renewable Resource Land; 5. Land for Transportation and Communication; 6. Land for Water Conservation; 7. Heritage Land; 8. Habitats; 9. Hazard Land; and 10. Local, Regional and Provincial Concerns.

The federal government established the Interdepartmental Committee on Land (ICL) to co-ordinate and ensure implementation of the Policy. The ICL has representatives from 16 federal departments and agencies whose activities directly affect our land resources *(see Appendix 1)*. The ICL's role is to incorporate land-use considerations into all federal activities with the potential to affect land resources and ecosystems. The ICL developed this document to assist federal program managers in understanding and applying the land-use guidelines.

PURPOSE

The purpose of this document is to assist federal program managers in implementing the FPLU Guidelines, and thereby ensure that the policies, programs, land management and other activities* of the federal government support the wise use of Canada's land resources. **To provide practical interpretation and assistance to program managers, the following elaborations and "how-to" instructions have been developed for the ten land-use guidelines.**

PROCEDURE

The following general approach to screening and implementation procedures is designed to assist managers in determining:

- **whether** a given program will generate a potential problem or opportunity in terms of land-use impacts;
- **how** to determine the significance of the impact; and
- **where** to get information.

The procedure is directed at a broad range of program managers responsible for: establishing a given program and overseeing its implementation, modifying existing programs, developing federal-provincial agreements, reviewing project or development proposals, assessing research proposals, or undertaking long-range strategic planning for programs.

*) "Activities" include all federal policies, programs, projects and federal holdings.

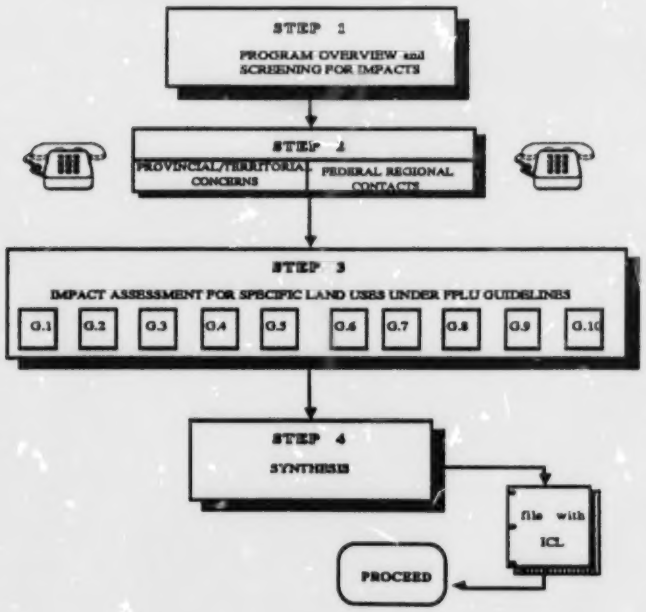
The four-step procedure for screening potential land-use impacts is briefly described as follows:

Step 1 - program overview - calls for managers to review a program with the intention of identifying the potential impacts of the policy, program, or project on other land uses, i.e., to conduct an **initial screening for impacts on land resources.** The purpose is to identify the current and/or potential land uses that may be affected by program activities. The impacts on these identified specific uses should be assessed in Step 3.

Step 2 - screening for conflicts with provincial/territorial concerns - encourages an early contact with the province/territory affected by the policy, program, or project. The purpose is early identification of potential land-use problems. The advantage of this first contact is avoiding future problems. After the first contact at the provincial/territorial level, managers should proceed with the assessment of land-use impacts as outlined in Step 3.

Step 3 - impact assessment for specific land uses - The main purpose for proceeding through the land-use guidelines identified in Step 1 and 2 is to avoid future, unanticipated problems by amending the program or project, its location, or delivery mechanisms when it is still relatively easy and inexpensive to do so, and to take advantage of opportunities.
Whether or not there are identified conflicts or opportunities provided by multiple use, better location, or pooling of resources with other agencies, Step 3, the assessment for each guideline should be documented and the manager should proceed with Step 4 - synthesis.

Step 4 - synthesis of impacts on all ten FPLU guidelines and development of best course of action. The purpose is to consider all land uses in an integrated manner in order to evaluate the overall impact of the proposed program and decide on the best course of action to deliver the program. It is proposed that the conclusion from the synthesized land-use impact assessment should be documented and filed with the ICL or the ICL departmental member.



GENERAL APPROACH TO SCREENING LAND-USE IMPACTS AND IMPLEMENTATION PROCEDURES FOR THE FPLU GUIDELINES

The objective is to implement the FPLU Guidelines in all federal policy, program, or project activities, as well as in the management of federal landholdings. Hereafter, in this manual, the term "program" will reflect all of these different types of federal activities.

The four-step procedure in screening land-use impacts is described as follows:

STEP 1: PROGRAM OVERVIEW AND INITIAL SCREENING FOR IMPACTS ON LAND RESOURCES

Through a first screening procedure, the purpose of the overview is to find out if the policy, program, or project has any **potential** to affect land resources. It is assumed that the manager has an overall understanding of the proposed program, as well as specific knowledge of components or of the steps involved in its delivery.

Federal program managers should be aware of

- different types of influences and impacts on land use; and
- the possible land-use effects of the programs they administer.

An initial evaluation of whether or not the program could affect land use or ecosystems can be done by **considering the potential impacts.** This involves a brief review of the typical impacts of such a program on the land resources **of each of the ten uses identified in the FPLU Guidelines,** and an assessment of how the activities and resources of the program might interact with them.

If existing or potential conflicts or impacts on the land resource have been identified, these should be further investigated. A detailed assessment of the effects on the identified resource should be carried out according to the outlined procedures in STEP 3.

• WHAT ARE POTENTIAL LAND-USE IMPACTS?

Land resources can be influenced in both negative or positive ways:
- Negative impacts are those which reduce capability of land resources for specific uses, preclude certain uses, or foreclose certain uses or options for the future.
- Positive impacts are those which enhance or sustain the land resource or ecosystems, preserve diversity, encourage integrated land use, and leave options open for the future.

The federal government can affect land resources in different ways:

- **Land ownership, tenure, use** - The acquisition, disposal, and management of federal lands

  Example: The management of, and the regulations concerning, federal lands can reduce the area of commercial forest land, preclude other uses such as hydro production and mining, or change the routes for powerlines and pipelines. Federal land management and ownership can also preserve natural heritage, provide opportunities for recreation, and show leadership in wise and sustainable resource use.

- **Construction activities**
  - Construction
  - Funding of infrastructure

  Example: Direct impacts from construction sites are: disruption of environmentally-sensitive areas; physical alteration of the land resource; soil erosion; destruction of archaeological sites; and disruption of water regimes. For example, highway construction can determine regional land-use patterns through improved access to land areas. Highways can also affect surrounding lands by disrupting existing residential or recreational uses. Appropriate engineering and construction procedures can maintain or even enhance resources, such as fish habitat. Positive impacts from construction activities can be obtained through co-ordination with other activities.

- **Regulations**
  - Designation of sites (land allocation)
  - Protection of the environment, heritage values, wildlife, health
  - Standards for economic sectors (e.g. housing, energy production)

  Example: Designated areas and structures, such as "National Parks and Heritage Buildings", protect natural or man-made heritage values. Designated areas can also generate commercial land uses in the surrounding area and stimulate economic development in the region; development of accommodation, tourist facilities, and access routes may disturb wildlife habitat or migrating routes. Standards for housing development can prevent hazardous sitings that could pose risks to public health and safety. Other standards for economic sectors, e.g. subdivision design for energy conservation, can improve the physical and social environment for residents.

- **Financial incentives**
  - Sectoral subsidies and support
  - Federal-provincial/territorial agreements
  - Loans, taxes, and credits
  - Regional development programs

  Example: Loans to farmers to facilitate the purchase of land, machinery, livestock, etc. can change land-use patterns by expanding agricultural land and reducing the land base for other uses, such as forestry or wildlife habitat. More intensive agricultural practices can lead to soil erosion and degradation. However, demonstration programs and subsidies can lead to improved agricultural practices that permit sustainable production over the long term. Environmental conditions attached to financial agreements such as the Economic and Regional Development Agreements, can promote long-term and sustainable resource utilization.

- **Research and Information**
  - Directly: experimental farms
  - Indirectly: extensive application of research results
  - New technologies

Example: New technologies for agriculture or forestry can change patterns in land use. New lands cleared for farming can cause loss of forest land, habitat, wetlands, or archaeological sites. On the other hand, while more intensive use of agricultural lands can release marginal farmland to other uses, such as forestry, it also can cause soil degradation. Research in land-use management can lead to new technologies or methods that are more efficient, and economically and/or environmentally sound. On the other hand, absent or inadequate research and information may maintain practices detrimental in the long term to land resources. *(See also the National Science and Technology Policy and Appendix 4)*

- **Fiscal policies** - Free trade; taxes; and tariffs

Example: Trade policies and tariff levels can affect the relative amount and type of activity in the primary and secondary sectors: for example, the relative ability of each industry (agriculture, forestry) to compete for land; the amount and type of land used for these sectors; the intensity of land use; or the land practices employed. Tariff barriers may also protect or stimulate the expansion of specific land uses.

- Further examples of potential land-use effects are presented in the following publications:

Federal Programs with the Potential to Significantly Affect Canada's Land Resource ("Top 100")
(Lands Directorate, Environment Canada, 1986)

The Identification of Impacts of Federal Programs on Land Use: A Manual for Program Managers.
(Lands Directorate, Environment Canada, 1982)

Appendix 4 gives more detailed information on these publications.

STEP 2: SCREENING FOR CONFLICTS WITH PROVINCIAL OR TERRITORIAL POLICIES, PROGRAMS, OR CONCERNS.

The purpose of this step is to find out if there are or appear to be any existing or potential conflicts with, or impacts (positive or negative) regarding **provincial/territorial interests**, such as provincial/ territorial land use or environmental policies, programs, or other concerns.

For early determination of conflicts and impacts, the "One-Window approach" can be used. The one-window approach identifies one contact person within each province or territory who can direct requests for information to the most appropriate agency within the province or territory.

The appropriate government agency in the province or territory should be contacted as early as possible in the screening procedure, to identify any major problems or opportunities regarding potential land-use impacts of the program. (The provincial and territorial contact points are listed in *Appendix 2.*)

In some cases, however, special situations such as security concerns will force a manager to skip the one-window approach and go directly to Step 3.

After the first contact at the provincial/territorial level, managers should proceed with the impact assessment for specific land uses in STEP 3.

STEP 3: IMPACT ASSESSMENT FOR SPECIFIC LAND USES

In the case of identified potential conflicts, opportunities, or impacts, a detailed assessment should take place for **each use of the land resource**, according to the FPLU Guidelines. Managers are asked to:

- identify and document the positive and negative impacts;
- determine the **significance** of these impacts;
- outline ways to **mitigate** the negative impacts; and
- propose methods to **enhance** the positive impacts.

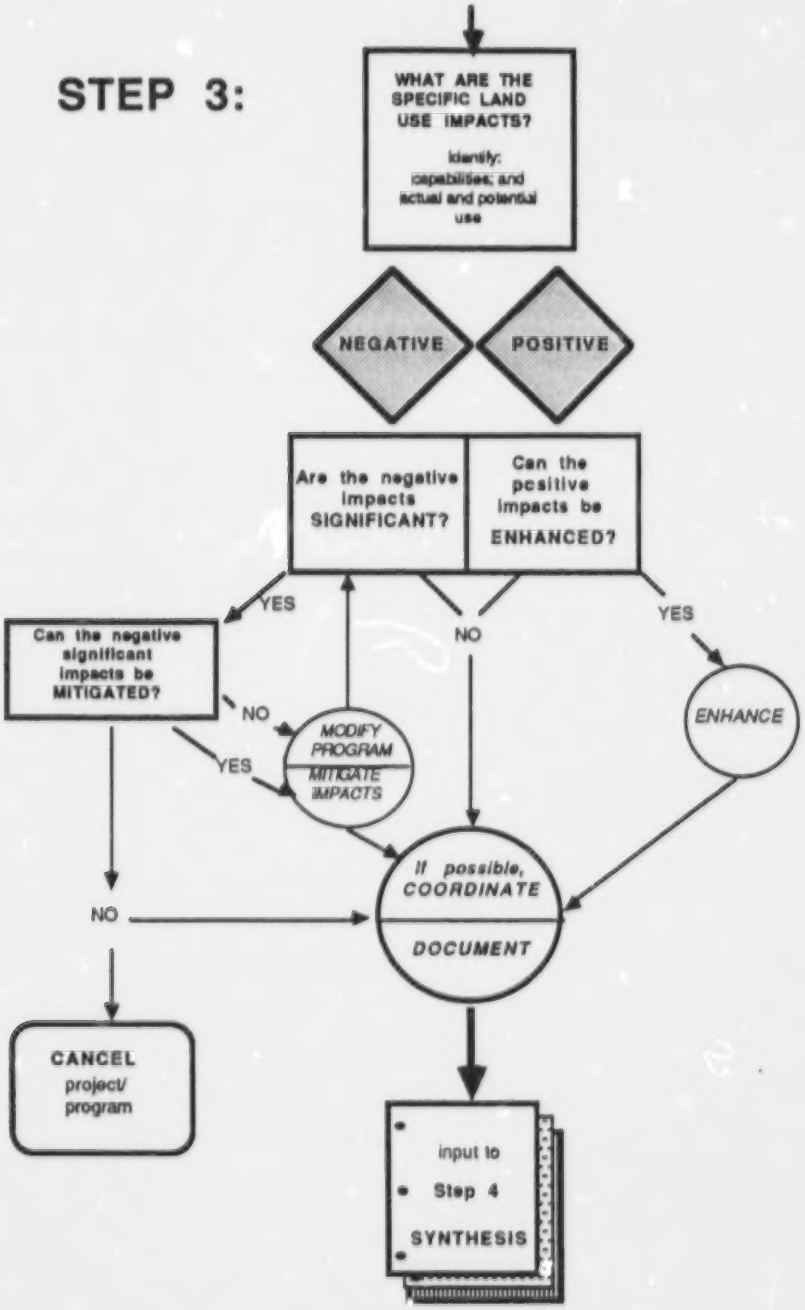
Identification of impacts on specific land resources requires basic data and information on the various aspects of the land use, for example:

- capability (e.g.space, agriculture, forestry);
- value (e.g. heritage values, aesthetics);
- special lands that are sensitive, critical, or hazardous (habitats, floodplains);
- use (present and planned, or proposed future use) on site and surrounding area;
- tenure (ownership, lease, licence);
- designation (heritage land and structures, agricultural reserves, hazard-prone areas);
- sectoral policies (wetlands, fish habitat, mining, soil and water conservation);
- physical planning (local or municipal by-laws, regional, provincial/territorial regulations and guidelines).

Consideration of program impacts should be made for the **precise program area/site, the surrounding lands, and the sphere of influence,** for example, downstream consequences of an upstream development.

Determining the significance and developing mitigation measures depends on judgment and understanding of the program impacts on the land resources. In the two following sections (p.10-12), some examples are given for determining **significance** and developing **mitigation measures.**

The procedure for assessing potential land-use impacts according to the FPLU Guidelines is outlined in the following diagram:



Whether or not there are identified conflicts or opportunities for each guideline, the results of the land-use impact assessment should be documented and the manager should proceed with STEP 4 - synthesis.

• SIGNIFICANCE OF IMPACTS

Determining the significance of land-use impacts is largely a matter of **judgment.**
The following factors will help in assessing the significance of program impacts:

FACTORS:

Magnitude - the probable severity or importance of each potential impact, that is, the degree, extensiveness, or scale.

Prevalence - cumulative effects occurring either simultaneously or sequentially, or in an interactive manner; the extent to which the impact may eventually grow. The extent can be spatial (e.g. spreading out geographically) and/or intensive (cumulation on the same site/area).

Duration - long-term or short-term activity and impacts.

Frequency - one-time impact or repetitive impacts; will intermittent activities allow recovery or enhance positive impacts during inactive periods?

Risk - the probability of serious environmental effects; health and safety; threats to livelihood. Risk can also be measured as a combination of Probability x Magnitude

Public concern - positive or negative impacts relating to public perception of, for example, recreational, aesthetic, or heritage values; location of hazardous waste; or life-style modifications.

Provincial/territorial concern - compliance with provincial/territorial statements, guidelines, or policies, regulations both areal and sectoral *(see also Guideline 10 - Local, Regional and Provincial Concerns).*

Probability - the likelihood that certain events/impacts would occur.

Compatibility - the level of (in)consistency or (in)compatibility between program impacts and existing plans for the area, or ecosystems functions.

Preclusion - does the program preclude other land uses, or foreclose future options?

Sustainability - the short-term socio-economic contribution of the program compared to the long-term sustainability of resource lands and their contribution to the national, regional, or local economy.

Opportunity cost - what uses/activities planned for the site or in the surrounding area are foregone in order to locate the program on the proposed site?

Precedent - does the program create a precedent (healthy or unhealthy) that is likely to be duplicated or extended elsewhere?

The impact of a given policy, program, or project may range from complete elimination of other possible land uses through to indirect negative or positive effects on certain components of other land uses, activities, values, or capabilities.

Because the determination of impacts rests upon judgment, no fixed formula can be prepared for rating all of these factors. The importance of these factors in assessing the significance of the land-use impacts of a specific program rests with the program manager and the circumstances in which he/she is operating. Value judgments must take place at Step 3, when considering each of the individual guidelines. Step 4 is where overall impacts are evaluated and the best implementation process is designed.

• MITIGATION OF NEGATIVE IMPACTS AND ENHANCEMENT OF POSITIVE IMPACTS

Negative impacts and influences on other land uses should be minimized, and where possible, positive impacts and co-ordination should be encouraged.

Federal program managers should attempt wherever possible, to avoid conflicts with local, regional, or provincial/territorial planning, policies, or programs. Public concerns should be addressed to ensure the successful delivery of the program.

If significant negative impacts have been identified, program managers should seek to reduce or eliminate the conflicts through mitigating measures. Mitigation is aimed at avoiding, reducing the severity, or controlling the land-use impacts of the program through a range of measures, such as program design alternatives, new technologies, modified delivery of the program, scheduling, or rehabilitation of site.

Enhancement of positive impacts can be accomplished by:
- co-ordination with other programs or land uses;
- improved or enhanced environmental quality;
- resource use efficiency;
- resource sustainability; or
- economic sustainability through wise resource use.

It is important to integrate the review of potential land-use impacts as early as possible when developing a program. Otherwise, when a review is done after a program is defined and approved, mitigation becomes an ad hoc procedure to avoid severe problems, and opportunities for co-ordination or enhancement could have been missed.

Examples of mitigation and enhancement associated with different types of federal activities are listed below. *(See also the ten individual FPLU Guidelines.)*

INFLUENCE OR WAY OF CREATING IMPACT:	MITIGATION / ENHANCEMENT
Land ownership, tenure, management	- How can co-ordination or integration with other land uses be accomplished? - Can other land-use values be maintained through special management actions? - If only temporary or seasonal effects, can the program be rescheduled to another time of the year? - Can other land uses be introduced, or re-introduced, after program activities are finished? - Is it possible to use replacement measures so that a particular land use is maintained on a sustainable basis?
Construction	- Can a smaller land base be used for the program? - Can the impacts on surrounding land be decreased through appropriate engineering and construction procedures and well-planned access roads to the construction site?
Regulations, allocation	- Can regulations be modified to minimize effects on land use (e.g. licences, zoning, designations)? - Can the planned program area be relocated on land with lower inherent capacity for specific land uses, or on land with lower specific values?
Financial incentives	- Can withholding financial support for program activities maintain capacity for or values of other land uses (e.g. sectoral and regional subsidies; funding of infrastructure and construction)?
Research and information	- Can new technologies and practices be co-ordinated for integrated land use with other sectors? (e.g. shelter planting to prevent soil erosion can have positive impact on wildlife habitat)
Fiscal policies	- Can tariffs and trade policies be modified to take into account biophysical conditions (and variations in regional capabilities) and enhance the long-term natural capability for production?

The program manager after going through the analysis as outlined in Step 3 should put the answers to the questions on the form as shown on page 15. If more information is required to complete the impact assessment, program managers should consult part two of this document for more detailed information on Step 3 and each land use guideline.

STEP 4: SYNTHESIS AND INTEGRATION OF ALL GUIDELINES

The purpose of Step 4 is to consider all land uses in an integrated manner, based on the analysis in Step 3. At this stage all the questions on the form have been answered individually. Step 4 is the time to look at the overall picture and fill in the last part of the form with a summary analysis and recommended course of action. It is important not only to consider negative impacts on the land resource, but also to review positive impacts that sustain or enhance the land resource. Positive impacts can be established, for example, through co-ordination with other projects or land uses, and through environment-economy integration.

The conclusions of the synthesized land-use impact assessment should be documented and filed with the ICL.

General indicators or criteria for determining whether or not a program is supportive of FPLU in an integrated manner are listed below:

- **Resource-use efficiency**

Projects that consider all land uses in an integrated manner will generally demonstrate efficient use of natural resources. Efficient use of resources includes measures to reduce the input necessary to achieve a given level of output, full product utilization, waste reduction, efforts to recover by-products if any, and the building of energy-efficient technology where appropriate. For program proposals that involve natural resource use, evidence should be presented by the proponent to show that the program has been designed with full consideration for efficient use of both renewable and non-renewable resources.

- **Resource sustainability**

Particularly with respect to renewable resources, the program should show that it has attempted to optimize resource use opportunities and conservation, and that its requirements do not exceed resource supply constraints. Projects should take into account questions of multiple use, sequential use of resources, as well as any requirements that the resource base serve more than the project's own objectives. Does the program include adequate regard for the maintenance, conservation, or renewal of the resource base so that long-term production can be maintained (e.g. sustained yield forestry)? It is important the resource base be managed in such a manner that resources are sustained for future generations. Have non-monetary values, such as heritage values, been conserved or protected?

- **Economic sustainability through wise resource use**

For projects involving or affecting on both the renewable and non-renewable resource sectors, there should be reference to the long-term sufficiency of the resource to sustain the local economy and employment. If appropriate, the proponent should provide plans for long-term resource maintenance, substitution, rehabilitation, and potential for sequential use, thereby ensuring long-term local employment .

- **Environmental Impact**

Proponent departments or agencies should ensure that their plans consider and avoid environmental impacts, mitigate such impacts, and/or take advantage of specific environmental opportunities. Does the program have known environmental resources? If so, does the program contain plans to address environmental effects? What are the specific characteristics of the site where the program is to be located and of the immediate surrounding areas? Have these characteristics been adequately included in the planning process so that the need for after-the-fact environmental review or mitigation is minimized? (e.g. EARP - the Federal Environmental Assessment and Review Process)

- **Cross Impact and complementaries**

Has there been adequate consideration of other economic sectors, provincial/territorial policies, or regional or broader objectives that would involve the same resources or the same sites? Does the proposal conflict with official plans, zoning, or policies established for other economic sectors or by provincial/territorial authorities, and that may involve the same areas or natural resources to be used for this program? Have these cross-sectoral and cross-jurisdictional impacts been addressed by the proponent department or agency?

DOCUMENTATION OF POTENTIAL LAND-USE IMPACTS

	POSITIVE			NEGATIVE		
G.1. Urban Land	Yes ☐	No ☐	N.A.* ☐	Yes ☐	No ☐	N.A.* ☐
	Description:.....			Description:.....		
	Enhancement:.....			Mitigation:.....		
G.2. Agricultural Land	Yes ☐	No ☐	N.A.* ☐	Yes ☐	No ☐	N.A.* ☐
	Description:.....			Description:.....		
	Enhancement:.....			Mitigation:.....		
G.3. Forest Land	Yes ☐	No ☐	N.A.* ☐	Yes ☐	No ☐	N.A.* ☐
	Description:.....			Description:.....		
	Enhancement:.....			Mitigation:.....		
G.4. Non-Renewable Resource Land	Yes ☐	No ☐	N.A.* ☐	Yes ☐	No ☐	N.A.* ☐
	Description:.....			Description:.....		
	Enhancement:.....			Mitigation:.....		
G.5. Land for Transportation and Communication	Yes ☐	No ☐	N.A.* ☐	Yes ☐	No ☐	N.A.* ☐
	Description:.....			Description:.....		
	Enhancement:.....			Mitigation:.....		

G.6. Land for Water Conservation

Yes ☐ No ☐ N.A.* ☐

Description:.....
.....
Enhancement:.....
.....

Yes ☐ No ☐ N.A.* ☐

Description:.....
.....
Mitigation:.....
.....

G.7. Heritage Land

Yes ☐ No ☐ N.A.* ☐

Description:.....
.....
Enhancement:.....
.....

Yes ☐ No ☐ N.A.* ☐

Description:.....
.....
Mitigation:.....
.....

G.8. Habitats

Yes ☐ No ☐ N.A.* ☐

Description:.....
.....
Enhancement:.....
.....

Yes ☐ No ☐ N.A.* ☐

Description:.....
.....
Mitigation:.....
.....

G.9. Hazard Land

Yes ☐ No ☐ N.A.* ☐

Description:.....
.....
Enhancement:.....
.....

Yes ☐ No ☐ N.A.* ☐

Description:.....
.....
Mitigation:.....
.....

G.10. Local, Regional and Provincial/Territorial Concerns

Yes ☐ No ☐ N.A.* ☐

Description:.....
.....
Enhancement:.....
.....

Yes ☐ No ☐ N.A.* ☐

Description:.....
.....
Mitigation:.....
.....

SYNTHESIS of potential land-use impacts and development of integrated approach to program delivery

• Recommended course of action (mitigation and/or enhancement measures)

* Not applicable

Part two

Specific elaborations of the FPLU guidelines

The purpose of this section is to provide more detailed information and guidance for Step 3 of the process, assessing the impacts federal programs or policies could have on the land uses as specified in the ten FPLU Guidelines.

If **potential** conflicts or impacts have been identified earlier in Step 1 or Step 2 according to the ten FPLU Guidelines, there should be a detailed assessment for each of those uses of the land resource.

Step 3 - impact assessment of specific land uses - is designed to guide federal program managers in assessing the significance of these land-use impacts and determining required actions.

The objective is to help managers:
- identify and document more precisely positive and negative effects on land use;
- determine the degree of impacts or conflicts;
- outline ways of mitigating negative impacts or conflicts;
- propose methods that will enhance positive impacts; and
- identify the possibility to co-ordinate federal activities.

Step 3 - impact assessment of specific land uses - includes the ten FPLU Guidelines:

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Guideline 1

URBAN LAND

IF THERE ARE , OR APPEAR TO BE, ANY EXISTING OR POTENTIAL IMPACTS ON URBAN LAND, THE SIGNIFICANCE OF THESE IMPACTS SHOULD BE ASSESSED.

FPLU GUIDELINE:

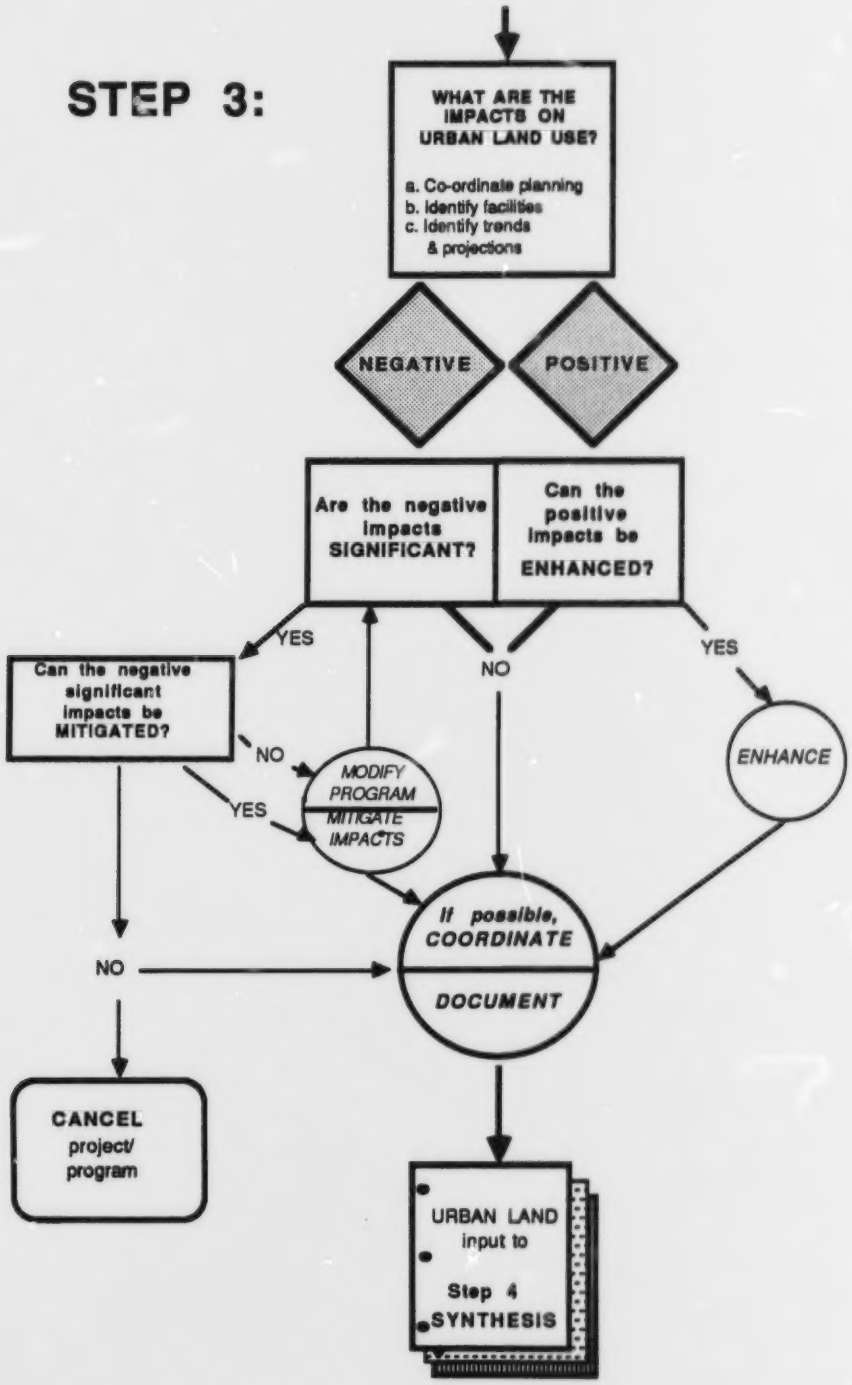
The impact on **urban land** will be considered.

Appropriate action will be taken **to support urban land use** which leads to **economically efficient urban areas**, and a **high quality physical and social environment** for urban residents.

INTERPRETATION:

- The aim is to achieve a **high quality** human environment (including both **physical and social standards**) that meets the needs and desires of residents expressed through public participation in the planning process.
- The physical growth and change of communities should occur in a manner that makes the most **efficient use** of land, resources, and existing facilities. "Efficient use" requires effective planning.
- Most urban areas have land-use plans or regulations - see also Guideline 10 (local, regional and provincial concerns).

Step 3 is illustrated in the following diagram which outlines the process for assessing impacts on urban land use.
It is assumed that **existing or potential impacts** have been identified in the program overview, Step 1 and Step 2.



I. IMPACTS ON URBAN LAND

Consider the following urban activities in the area where the program will have its greatest effects; include both the precise site/area for the program and the surrounding lands:

INFORMATION :

a. Urban areas require **effective planning to integrate and co-ordinate various activities and resources,** including both natural and human resources. Efficient use of land requires effective allocation for the siting of facilities.

b. **The availability and accessibility of urban facilities** determine the quality of social and physical environments. Examples of facilities and services reflecting provincial/ territorial priorities are:

- housing: high, medium or low-density; single or multiple family; affordable housing;
- transportation: public transportation; road network; parking;
- schools;
- day care; playgrounds;
- facilities for the elderly;
- facilities for the disabled;
- medical/dental services; hospitals;
- commercial retailer; shopping districts: regional, community, and neighbourhood facilities;
- water; sewage; garbage collection;
- recreation facilities: swimming pools; skating rinks; urban parks;
- public libraries; art galleries; museums;
- regional green spaces or green belts.

• The planning output should meet the needs and desires of residents for a **high quality environment,** and the planning process should accommodate public participation.

c. **Trends and projections** for urban growth: change or decline in the urban area with implications for housing, employment, retail, recreational, schooling, and health care needs.

? - **WHAT ARE THE SPECIFIC IMPACTS ON URBAN LAND?**

1. Is the land included in any local plan or zoning, or are there any proposals for future planning in the area?
2. Is the area used for any urban facilities or services?
3. Are there any existing federal or provincial policies or plans for the program area?
4. Are there potential significant land-use conflicts or public controversies involving this site as expressed by local political interests or community groups?
5. Is there any incompatibility with the capacity of the urban area to accommodate the development stimulated by the program (e.g. roads, sewage treatment, social and recreation services, schools, and housing)?

No impacts: - Document and proceed to the synthesis, Step 4.

Yes - identified impacts (positive or negative): determine if impacts are significant.

II. SIGNIFICANCE OF IMPACTS

When discussing urban environments and planning processes, important factors to consider are the significance of **conflicts with existing or future plans or zoning, and with public concern.** Assessing significance is largely a matter of judgment, but the following factors will help in examining the significance of program impacts:

Magnitude
Prevalence
Duration
Frequency
Risk
Public concern
Provincial/territorial concern
Compatibility
Preclusion
Sustainability
Opportunity cost
Precedent

(These factors are explained above in General Approach - Step 3 : significance of impacts.)

? ARE THE NEGATIVE IMPACTS OR CONFLICTS SIGNIFICANT?	CAN POSITIVE IMPACTS BE ENHANCED?
YES Find out if the significant impacts or conflicts can be mitigated.	Co-ordinate/Enhance.

NO If possible, co-ordinate; document; and proceed to the synthesis, Step 4.

III. MITIGATION OF SIGNIFICANT NEGATIVE IMPACTS AND ENHANCEMENT OF POSITIVE IMPACTS

From the preceding identification of how a program will affect urban land, determine what can be done to **mitigate negative impacts** either by:

- program design or siting alternatives;
- modified means of carrying out the program;
- scheduling; or
- rehabilitation after the program.

Enhancement of positive impacts can be accomplished either by:
- co-ordination with other programs or land uses;
- increased environmental quality;
- resource-use efficiency;
- resource sustainability; or
- economic sustainability through wise resource use.

For example:

Land ownership, tenure, use

- How can co-ordination or integration with other land uses, services, or facilities be accomplished?
- If effects are only temporary or seasonal, can the program be rescheduled?
- Can any special management actions or practices decrease the negative impacts on urban areas, or maintain the quality of urban environments?
- Can other facilities or services be introduced, or re-introduced, after program activities are finished?
- Is it possible to use replacement measures with the aim of maintaining the number of urban facilities (including green areas), economic activity, or employment in a community?

Construction

- Can a smaller land base be used for the program?
- Can the impacts on urban facilities surrounding a construction site be decreased through appropriate engineering and construction procedures?

Regulations, allocation

- Can programs be located to provide a stimulus or catalyst for physical redevelopment or economic rejuvenation of urban areas or communities?
- Can regulations be modified to minimize the effects on urban land? (e.g. licences, zoning, designations.)
- Can the planned program area be relocated to land where there will be fewer negative implications for urban facilities or services? (larger transportation networks; energy powerlines)

Financial incentives

- Can withholding financial support for program activities maintain the potential for urban facilities and services or reduce excessive growth pressures? (e.g. sectoral and regional subsidies; funding of infrastructure and construction.)
- Can providing incentives ensure that high quality and necessary urban facilities and services are provided in a timely and effective manner?

Research and information

- Can new technologies and practices be co-ordinated for integrated land use with other sectors? Are there any prospects of joint research activities? Can transfer or diffusion of technology and knowledge enhance positive impacts?

? CAN THE SIGNIFICANT NEGATIVE IMPACTS BE MITIGATED?	CAN POSITIVE IMPACTS BE ENHANCED?
NO:	**NO:**
1. Modify program, and re-determine if there are any impacts on urban land ; or 2. Cancel program; or 3. Document for the synthesis (Step 4).	Document for the synthesis.

YES: Mitigate and/or enhance, and document for the synthesis, Step 4.

Guideline 2

AGRICULTURAL LAND

IF THERE ARE , OR APPEAR TO BE, ANY EXISTING OR POTENTIAL IMPACTS ON AGRICULTURAL LAND, THE SIGNIFICANCE OF THESE IMPACTS SHOULD BE ASSESSED.

FPLU GUIDELINE:

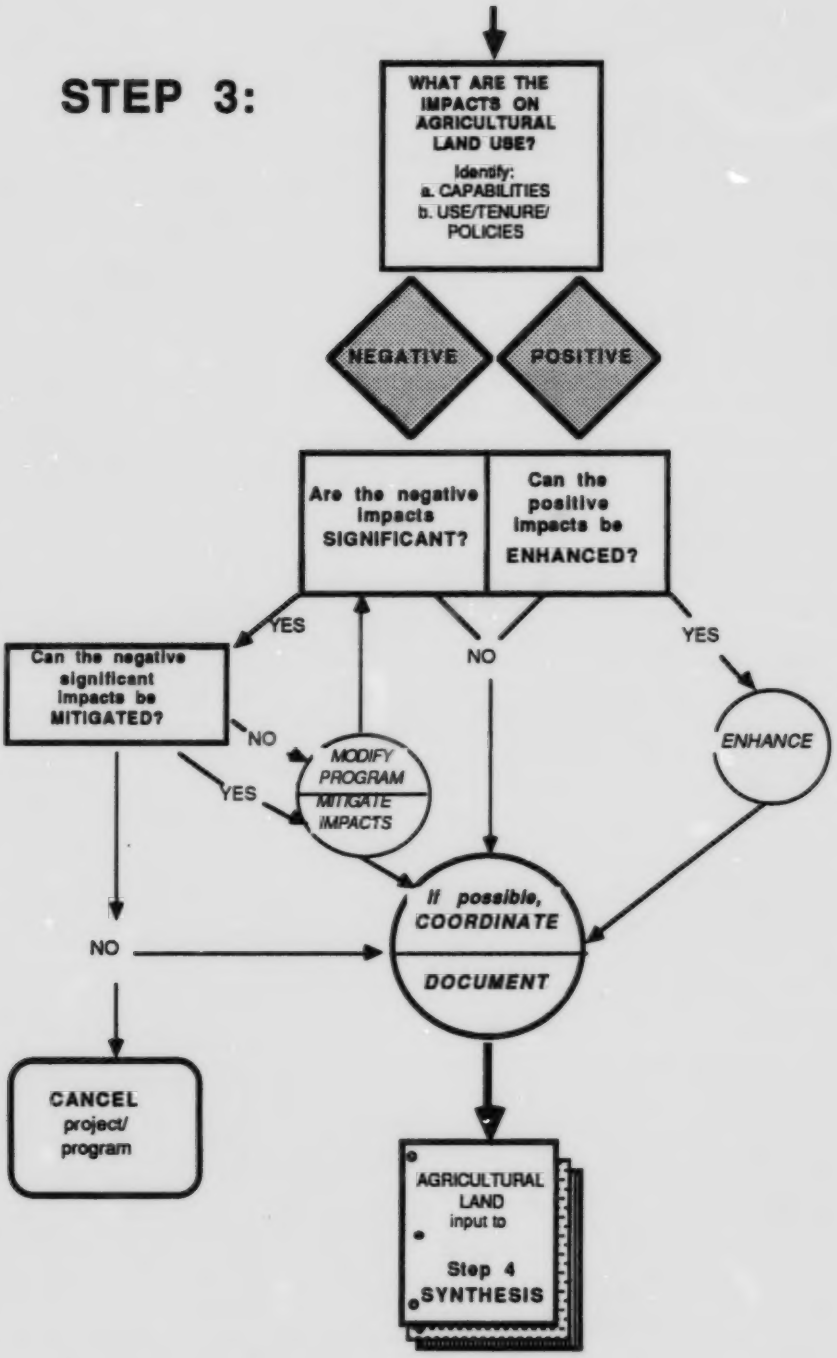
The impact on land with **high agricultural capacity** will be considered.

Appropriate action will be taken to minimize the conversion of such lands to uses incompatible with **long-term food production.**

INTERPRETATION:

- **"Capacity"** includes both capability and/or use.
- Land has **high agricultural potential** where:
  - biophysical characteristics are directly suitable for agricultural practices; and/or
  - the soil has high capability for agricultural production in the long term; and/or
  - agriculture is currently practised; and/or
  - land is suitable for producing or sustaining the production of food, crops, livestock, or fibre and/or;
  - land is allocated/designated as agricultural land in provincial/territorial agricultural land regulations or guidelines, or official municipal or community land-use plans, and has the capability for such use.

Step 3 is illustrated in the following diagram which outlines the process for agricultural land-use impact assessment.
It is assumed, that **existing or potential impacts** have been identified in the program overview, Step 1 and Step 2.



I. AGRICULTURAL LAND-USE IMPACTS

To identify the agricultural **capabilities, uses , tenures, and policies** of the area where the program will impact, the following data or information may be required. (More detailed sources for information are identified in *Appendix 3.2.)*

INFORMATION :

A. CAPABILITIES

• The provinces/territories may have regional inventories of agricultural land and soil capabilities. Individual **soil survey reports** are published by Provincial Soil Survey Units/Agriculture Canada.

• **Canada Land Inventory (CLI)**: Soil Capability Classification for Agriculture, CLI Report No.2, 1972. CLI Soil Capability for Agriculture is a classification system that indicates the general suitability of the land for agricultural use, based on potentials and limitations. Physical characteristics, such as **climate, soil, and landscape**, are considered to be the most important since they are direct indicators of capability. The classification is limited to mineral soils. Classification for organic soils is presently being developed. The classification is based on assumptions of good soil management and largely mechanized systems. In its classification, the CLI assumes that feasible improvements will be made. The CLI does not consider distance to market, location, access, road construction, ownership, size of farms, or operator's skills. The CLI class boundaries are not always compatible between provinces.

The CLI classification has to be assessed in terms of its relative value within the province or region. This means that the land considered for the program might have low overall CLI value while still having the highest CLI value within the province or region. Some provinces do not have any Class 1 agricultural land, and thus more moderate capability soil assumes greater regional importance. For Classes 1-3, protection of agricultural land is the main concern, while Class 5 lands imply enhancement of agricultural capacity.

B. PRESENT AND FUTURE AGRICULTURAL LAND USES / TENURES / POLICIES

Examples of factors to identify are :

Use: Type of agricultural activities; crops/commodities produced;
Size of farms; agricultural employment; full-time or part-time farming;
Existing capital investment in farms, machinery or livestock;
Extent of agricultural community; location and pattern; infrastructure.

Tenure: Ownership and management (owner- or tenant-operated). Crown or private land.
Existing rights, licences, etc. in case of leased land: location, time-span, management, and contractual agreements.

Policy: Regulations and guidelines concerning agriculture including:
- Plans: land-use plans and zoning; and regional or municipal plans;
- Policy guidelines for agricultural land or production;
- Policy guidelines for soil or water conservation;
- Other provincial/territorial land use or agricultural policies.
- Designated agricultural reserves; "Right to Farm" legislation.

? - WHAT ARE THE SPECIFIC AGRICULTURAL LAND-USE IMPACTS ?

1. Does the land have CLI Classes 1-5 Soil Capability for Agriculture, or is the soil suitable for agricultural production (e.g. certain organic soils)?
2. Is there any soil conservation program, policy, or strategy existing for the province/territory, region, or program area that conflicts with the proposed change in land use?
3. Is the land currently owned or used for agricultural production or research?
4. Are there any existing official local,regional, or provincial/territorial agricultural policies or plans, or designated agricultural reserves, for the program area?
5. Are there any possible negative impacts on agricultural land or high capability soils surrounding the program area?

No impacts: Document and proceed to the synthesis, Step 4.

Yes - identified impacts (positive or negative); determine if impacts are significant.

II. SIGNIFICANCE OF IMPACTS

Determining significance is largely a matter of judgment, but the following factors will help in assessing program impacts. Effects may range from a complete elimination of agricultural activities or destruction of high capability soils, through to minor, indirect effects on a limited portion of agricultural operations or potential.

Magnitude
Prevalence
Duration
Frequency
Risk
Public concern
Provincial/territorial concern
Compatibility
Preclusion
Sustainability
Opportunity cost
Precedent

(These factors are explained above in General Approach - Step 3 : significance of impacts.)

? ARE THE NEGATIVE IMPACTS OR CONFLICTS SIGNIFICANT?	CAN POSITIVE IMPACTS BE ENHANCED?
YES Find out if the significant impacts or conflicts can be mitigated.	Co-ordinate/Enhance.

NO If possible, co-ordinate; document; and proceed to the synthesis, Step 4.

III. MITIGATION OF SIGNIFICANT NEGATIVE IMPACTS AND ENHANCEMENT OF POSITIVE IMPACTS

From the preceding identification of how a program will affect agricultural land, determine what can be done to **mitigate negative impacts** either by:

- program design or siting alternatives;
- modified means of carrying out the program;
- scheduling; or
- rehabilitation after the program.

Enhancement of positive impacts can be accomplished either by:
- co-ordination with other programs or land uses;
- increased environmental quality;
- resource-use efficiency;
- resource sustainability; or
- economic sustainability through wise resource use.

For example:

Land ownership, tenure, use

- How can co-ordination or integration with other land uses be accomplished? (e.g. forestry, wildlife habitat, wetland preservation, water conservation.)
- If only temporary or seasonal effects, can the program be rescheduled ?
- Can special actions or practices decrease the negative impacts on agricultural lands, or maintain agricultural capacity?
- Can agriculture be introduced, or re-introduced, after program activities are finished?

Construction

- Can a smaller land base be used for the program?
- Can the impacts on agricultural land surrounding a construction site be decreased through appropriate engineering and construction procedures, and well-planned access roads to the construction site?

Regulations, allocation

- Can regulations be modified to minimize the effect on agricultural land use? (e.g. licences, zoning, designations.)
- Can the planned program area be relocated on land with lower or no agricultural capacity? (e.g. urban, suburban, and industrial development; transportation networks, roads, railways, etc.; energy powerlines and pipelines.)

Financial incentives

- Can withholding financial support for program activities maintain the agricultural capacity? (e.g. sectoral and regional subsidies; funding for infrastructure and construction.)
- Could conditions for wise resource use be attached to financial incentives (ERDAs)?

Research and information

- Can new technologies and practices be co-ordinated, integrating land use with other sectors? (e.g. shelter planting to prevent soil erosion can have positive impact on wildlife habitat.) Are there any prospects of joint research activities? Can transfer or diffusion of technology and knowledge enhance positive impacts?

? CAN THE SIGNIFICANT NEGATIVE IMPACTS BE MITIGATED?	CAN POSITIVE IMPACTS BE ENHANCED?
NO:	**NO:**
1. Modify program, and re-determine if there are any impacts on agricultural land ; or 2. Cancel program; or 3. Document for the synthesis (Step 4).	Document for the synthesis.

YES: Mitigate and/or enhance, and document for the synthesis, Step 4.

Guideline 3

FOREST LAND

IF THERE ARE , OR APPEAR TO BE, ANY EXISTING OR POTENTIAL IMPACTS ON FOREST LAND, THE SIGNIFICANCE OF THESE IMPACTS SHOULD BE ASSESSED.

FPLU GUIDELINE

The impact of policies and programs on land with **high forestry capacity** will be considered.

Appropriate action will be taken to ensure the maintenance of such lands for **sustained fibre production.**

INTERPRETATION:

- The **forestry** resource considered in this guideline is **fibre (timber) production.** For other aspects of forestry land use, see guidelines 6-Water, 7-Heritage, and 8-Habitat.

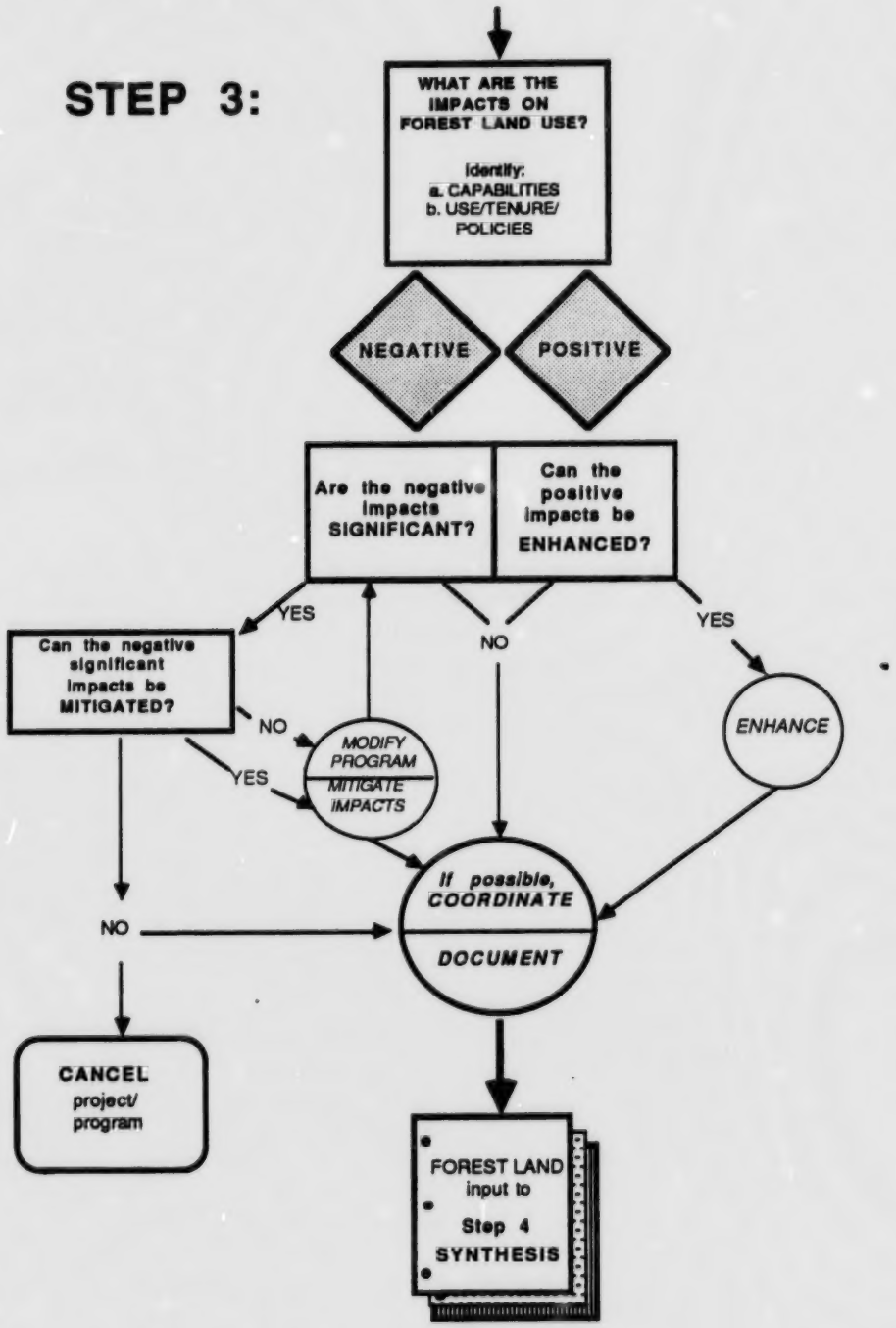
- **"Capacity"** includes both capability and use.

- Land has **high forestry potential** where:

  - biophysical characteristics are suitable for timber management; or
  - forestry is currently practised; and/or
  - land is allocated/designated as forest land for timber management in approved land-use plans, or in regional, district,local, municipal, or community plans.

- **Sustained fibre production** implies an identified land-resource base, and continuing yield from the resource base in perpetuity.

Step 3 is illustrated in the following diagram which outlines the process for assessing impacts on forest land use.
It is assumed that **existing or potential impacts** have been identified in the program overview, Step 1 and Step 2.



I. FOREST LAND-USE IMPACTS

To identify the forestry:

A. capabilities
B. uses / tenures / policies

in the area where the program will impact, the following information may be required. (More detailed sources for information are identified in *Appendix 3.3.*)

INFORMATION :

A. CAPABILITIES

a) Project or site-specific level
- Provincial/territorial forest inventories and data bases. Soils data.

- Local forest inventories and data, including Crown, municipal, and private sources, can provide valuable information and should be consulted.

b) Large-scale or policy-level activities - general overview databases:
- FORSTATS data base, Canadian Forestry Service. This information is based on provincial/ territorial data.

- CLI Forestry (Canada Land Inventory): Land Capability Classification for Forestry CLI Report No.4, 1972. CLI Forestry is a classification system that rates the potential forest capability of land under good management. CLI does not consider location, access, ownership, or present use or state.

Both the CLI and other classifications have to be compared to their relative value within the province or region. In other words, the land considered for the program might have low overall CLI value, but still have the highest possible CLI value within the province or region. CLI Forest Capability Class 5 and better (Classes 1-4) should be considered to have timber production potential.

B. PRESENT AND FUTURE FOREST LAND USES / TENURES / POLICIES

Factors of interest to identify can be:

Use: Existing timber volume; existing commitments and management plans; ongoing operations; investment in regeneration; annual allowable cut; Employment; extent of forestry community (single-resource communities).

Tenure: Ownership; Existing rights, lease arrangements, licences, etc.: location and time-span.

Policy: Regulations and guidelines concerning forestry included in:
- Plans: land-use plans; designations and zoning of regions, districts, or local municipalities;
- Federal and provincial/territorial policy guidelines for forestry;
- Other provincial/territorial land use or forestry policies.

? - WHAT ARE THE SPECIFIC FORESTRY LAND-USE IMPACTS ?

1. Is there any forestry production and/or capability for production in the area, identified in FORSTATS, or in the CLI (CLI Forestry Classes 1 to 5) ?
2. Is the land owned or leased by a public or private company, private individual, or crown agency for timber production or research?
3. Is there any existing forest policy or plan, or future forestry tenure or allocation for the program area?
4. Are there any possible impacts on forest land surrounding the program area?

No impacts: - Document and proceed to the synthesis, Step 4.
Yes - identified impacts (positive or negative): determine if impacts are significant.

II. SIGNIFICANCE OF IMPACTS

Determining significance is largely a matter of judgment, but the following factors will help in assessing program impacts. Effects may range from a complete elimination of any possibility of forestry activities, through to indirect effects on certain aspects of forestry operations or potential.

Magnitude
Prevalence
Duration
Frequency
Risk
Public concern
Provincial/territorial concern
Compatibility
Preclusion
Sustainability
Opportunity cost
Precedent

(These factors are explained above in General Approach - Step 3 significance of impacts.)

? ARE THE NEGATIVE IMPACTS OR CONFLICTS SIGNIFICANT?	CAN POSITIVE IMPACTS BE ENHANCED?
YES Find out if the significant impacts or conflicts can be mitigated.	Co-ordinate/Enhance.

NO If possible, co-ordinate; document; and proceed to the synthesis, Step 4.

III. MITIGATION OF SIGNIFICANT NEGATIVE IMPACTS AND ENHANCEMENT OF POSITIVE IMPACTS

From the preceding identification of how a program will affect forest land, determine if anything can be done to **mitigate negative impacts** either by:

- program design or siting alternatives;
- modified means of carrying out the program;
- scheduling; or
- rehabilitation after the program.

Enhancement of positive impacts can be accomplished either by:

- co-ordination with other programs or land uses;
- increased environmental quality;
- resource-use efficiency;
- resource sustainability; or
- economic sustainability through wise resource use.

For example:

Land ownership, tenure, use

- How can co-ordination or integration with other land uses be accomplished? (e.g. recreation, tourism)
- If only temporary or seasonal effects, can the program be rescheduled?
- Can any special management actions or practices (such as intensive management) decrease the negative impacts, or maintain forestry capability?
- Can forestry be introduced, or re-introduced, after program activities are finished?
- Is it possible to use replacement measures (such as re-allocation of land or intensive management) to allow sustainable development of the forest resource and maintain forest production in the region?

Construction

- Can a smaller land base be used for the program?
- Can the impacts on forest land surrounding a construction site be decreased through appropriate engineering, construction, or operational procedures and well-planned access roads to the construction site?

Regulations, allocation

- Can regulations be modified to minimize the effects on forest land use? (e.g. licences, zoning, designations.)
- Can the program area be relocated on land with lower forestry capacity ? (e.g. urban, suburban, and industrial development; transportation networks, roads, railways, etc.; energy powerlines and pipelines.)

Financial Incentives

- Can withholding financial support for program activities maintain forestry capacity? (e.g. sectoral and regional subsidies; funding for infrastructure and construction.)
- Could conditions for wise resource use be attached to financial incentives (ERDAs)?

Research and Information

- Can new technologies and practices be co-ordinated for integrated land use with other sectors? Are there any prospects of joint research activities? Can transfer or diffusion of technology and knowledge enhance positive impacts?

? CAN THE SIGNIFICANT NEGATIVE IMPACTS BE MITIGATED?	CAN POSITIVE IMPACTS BE ENHANCED?
NO: 1. Modify program, and re-determine if there are any impacts on forest land ; or 2. Cancel program; or 3. Document for the synthesis (Step 4).	**NO:** Document for the synthesis.

YES: Mitigate and/or enhance, and document for the synthesis, Step 4.

Guideline 4

NON-RENEWABLE RESOURCE LAND

IF THERE ARE , OR APPEAR TO BE, ANY EXISTING OR POTENTIAL IMPACTS ON NON-RENEWABLE RESOURCE LAND, THE SIGNIFICANCE OF THESE IMPACTS SHOULD BE ASSESSED.

FPLU GUIDELINE:

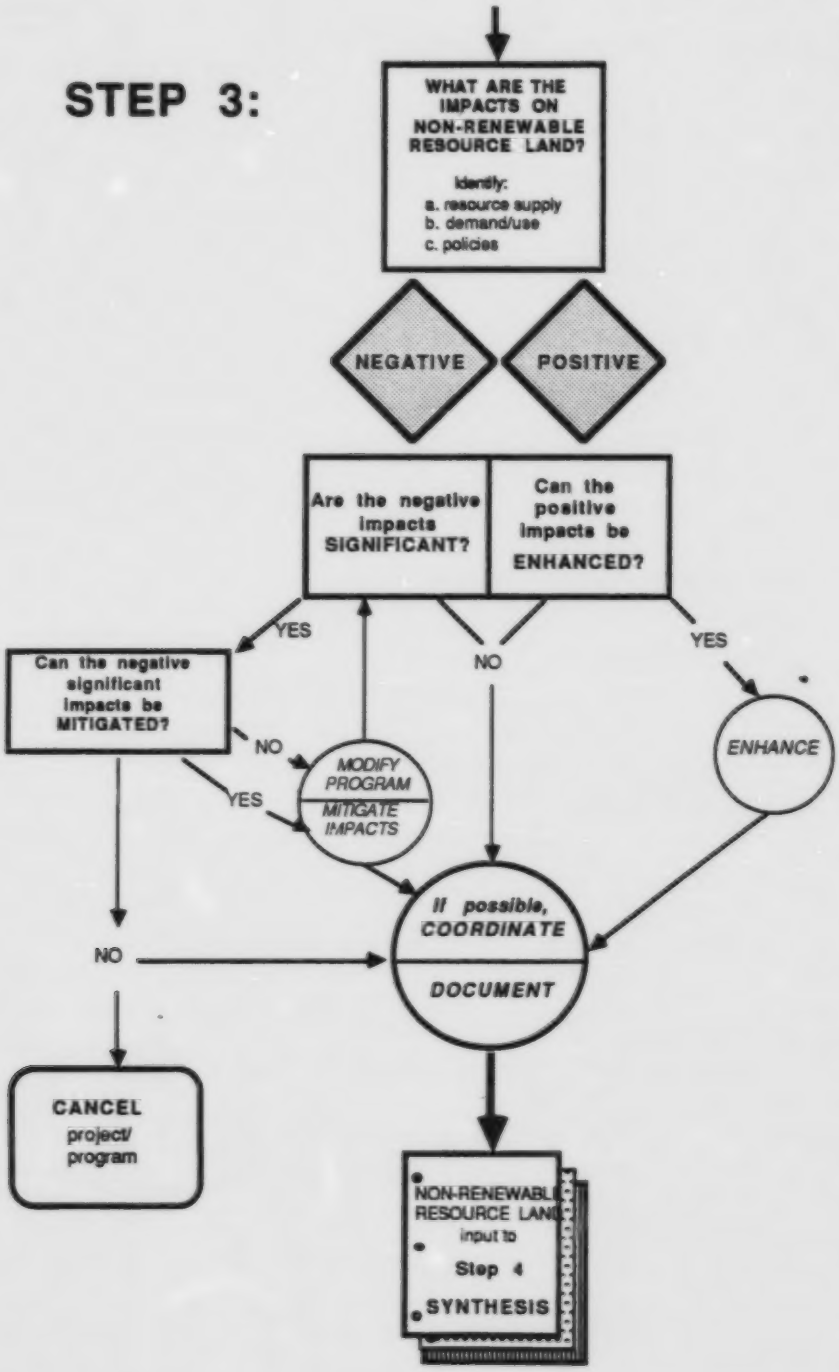
The impact of policies and programs on the use and development of land with **potential for production of non-renewable resources** such as **minerals, hydrocarbons and aggregates** will be considered.

Appropriate action will be taken to **ensure access** and, where required, **rehabilitation.**

INTERPRETATION:

- **Non-renewable resources** means resources depleted by extraction.
- **Minerals** include mineral occurrences and deposits located in a variety of geological terrain. These occurrences are categorized as follows:
  - **metallic minerals:** gold, silver, copper, lead, zinc, nickel, cobalt, antimony, manganese, and iron.
  - **non-metallic, industrial minerals,** include such commodities as gypsum, anhydrite, salt, dolomite, limestone, clay and shale, silica sand, barite, and building stone. Some of these "industrial minerals" are deposited as **aggregates.**
- **Aggregates** are naturally-occurring granular aggregate materials, principally sand and gravel deposits, and rock quarries excavated from suitable bedrock.
- **Hydrocarbons** include deposits located in specific geological terrains. Hydrocarbons are coal, natural gas, fuel peat, oil sands, oil shales, and other petroleum products.

Step 3 is illustrated in the following diagram which outlines the process for assessing impacts on land with potential for non-renewable resources.
It is assumed that **existing or potential impacts** have been identified in the program overview, Step 1 and Step 2.



I. IMPACTS ON LAND FOR NON-RENEWABLE RESOURCES

Identify the following concerns on lands for non-renewable resources in the area where the program will impact, including both the precise site/area for the program and the surrounding lands:

a. resource supply
b. demands / use
c. policies

INFORMATION :

A. POTENTIAL SUPPLY AREAS are known or potential occurrences and deposits of:

- minerals (metallic and non-metallic)
- aggregates
- hydrocarbons.

Future potential of the area can be estimated from geological mapping, geochemistry, etc.

B. DEMAND/ USE includes any registered claim, lease,tenure, or right to these non-renewable resources, or any present or potential use of the land for extraction or production. The **quality** aspect of the supply is an important factor determining demand or use.

- **Federal, provincial and territorial** data bases and inventories provide information for the area/site concerned. The federal government and provinces/territories can provide maps and data, and they also keep records of tenure, licences, and present and planned activities.

C. POLICIES

- **Provincial and territorial** legislation and policies provide regulations for the concerned area/site. In the territories, except for block land transfers, **federal regulations and policies** govern. (Indian and Northern Affairs Canada DIAND: Northern Affairs Program.)

- **Northern Mineral Policy** (prepared by DIAND) recognizes the importance of the mineral industry to the territorial economies. The aim is to assure the mineral sector that exploration programs will not in future be disrupted by changes in land status, and transportation corridors will be protected for the industry's use.

- **Mineral and Metal Policy of the Government of Canada**, prepared by the Department of Energy, Mines and Resources (EMR).

- **Energy and Canadians into the 21st Century, A Report on the Energy Options Process,** prepared by the Energy Options Advisory Committee, available from Energy, Mines and Resources.

DATA:
EMR has various maps, inventories (national mineral inventory) and other data on non-renewable resources in Canada.
- The Geological Survey of Canada (GSC), of EMR computer-based inventory.

? - WHAT ARE THE SPECIFIC IMPACTS ON LAND FOR NON-RENEWABLE RESOURCES?

1. Does the program area have any known or potential occurrence or deposit of minerals, aggregates, or hydrocarbons?
2. Is the area used for extraction of any non-renewable resources?
3. Are there any existing federal or provincial non-renewable resources policies or plans for the program area?
4. Will the program affect non-renewable resources in surrounding areas, future access to those deposits, or accessibility for exploration purposes?

No impacts: - Document and proceed to the synthesis, Step 4.

Yes - identified impacts (positive or negative): Determine if impacts are significant.

II. SIGNIFICANCE OF IMPACTS

Determining significance is largely a matter of judgment, but the following factors will help in assessing program impacts. Effects may range from a complete elimination of any potential for future production of non-renewable resources, or any acceptable rehabilitation, through to indirect effects on certain aspects of extraction and production.

Magnitude
Prevalence
Duration
Frequency
Risk
Public concern
Provincial/territorial concern
Compatibility
Preclusion
Sustainability
Opportunity cost
Precedent

(These factors are explained above in General Approach - Step 3 : significance of impacts.)

? ARE THE NEGATIVE IMPACTS OR CONFLICTS SIGNIFICANT?	CAN POSITIVE IMPACTS BE ENHANCED?
YES Find out if the significant impacts or conflicts can be mitigated.	Co-ordinate/Enhance.

NO If possible, co-ordinate; document; and proceed to the synthesis, Step 4.

III. MITIGATION OF SIGNIFICANT NEGATIVE IMPACTS AND ENHANCEMENT OF POSITIVE IMPACTS

From the preceding identification of how a program will affect non-renewable resource land, determine if anything can be done to **mitigate negative impacts** either by:

- program design or siting alternatives;
- modified means of carrying out the program;
- scheduling;
- rehabilitation after the program; or
- resource substitution.

Enhancement of positive impacts can be accomplished either by:
- co-ordination with other programs or land uses;
- increased environmental quality;
- resource-use efficiency; or
- economic sustainability through wise resource use.

For example:

Land ownership, tenure, use

- How can co-ordination or integration with other land uses be accomplished? (e.g. recreation, forestry, habitat, agriculture, transportation networks, construction.)
- If effects are only temporary or seasonal, can the program be rescheduled?
- Can any special management actions or practices decrease the negative impacts on accessibility of non-renewable resources?
- Can other uses be introduced, or re-introduced, after program activities are finished? (e.g. forestry; or reclamation of land for recreational use)

Construction

- Can a smaller land base be used for the program?
- Can the impacts on accessibility of deposits of non-renewable resources surrounding a constuction site be decreased through appropriate engineering and construction procedures, and well-planned access roads to the construction site?

Regulations, allocation

- Can regulations be modified to minimize the effects on accessibility of non-renewable resources? (e.g. licences, zoning, designations.)
- Can the planned program area be relocated or rescheduled to minimize the implications for non-renewable resource extraction? Urban, suburban, and industrial development; transportation networks, roads, railways, etc.; energy powerlines and pipelines could be located after the non-renewable resources have been extracted.

Financial incentives

- Can withholding financial support for program activities ensure that required rehabilitation takes place after resource extraction is finished? (e.g. sectoral and regional subsidies; funding for infrastructure and construction.)
- Could conditions for wise resource use be attached to financial incentives (ERDAs)?

Research and information

- Can new technologies and practices be co-ordinated for integrated land use with other sectors? Are there any prospects of joint research activities? Can transfer or diffusion of technology and knowledge enhance positive impacts?

? CAN THE SIGNIFICANT NEGATIVE IMPACTS BE MITIGATED?	CAN POSITIVE IMPACTS BE ENHANCED?
NO:	**NO:**
1. Modify program, and re-determine if there are any impacts on non-renewable resource land ; or 2. Cancel program; or 3. Document for the synthesis (Step 4).	Document for the synthesis.

YES: Mitigate and/or enhance, and document for the synthesis, Step 4.

Guideline 5

LAND FOR TRANSPORTATION AND COMMUNICATION

IF THERE ARE , OR APPEAR TO BE, ANY EXISTING OR POTENTIAL IMPACTS ON LAND FOR TRANSPORTATION AND COMMUNICATION, THE SIGNIFICANCE OF THESE IMPACTS SHOULD BE ASSESSED.

FPLU GUIDELINE:

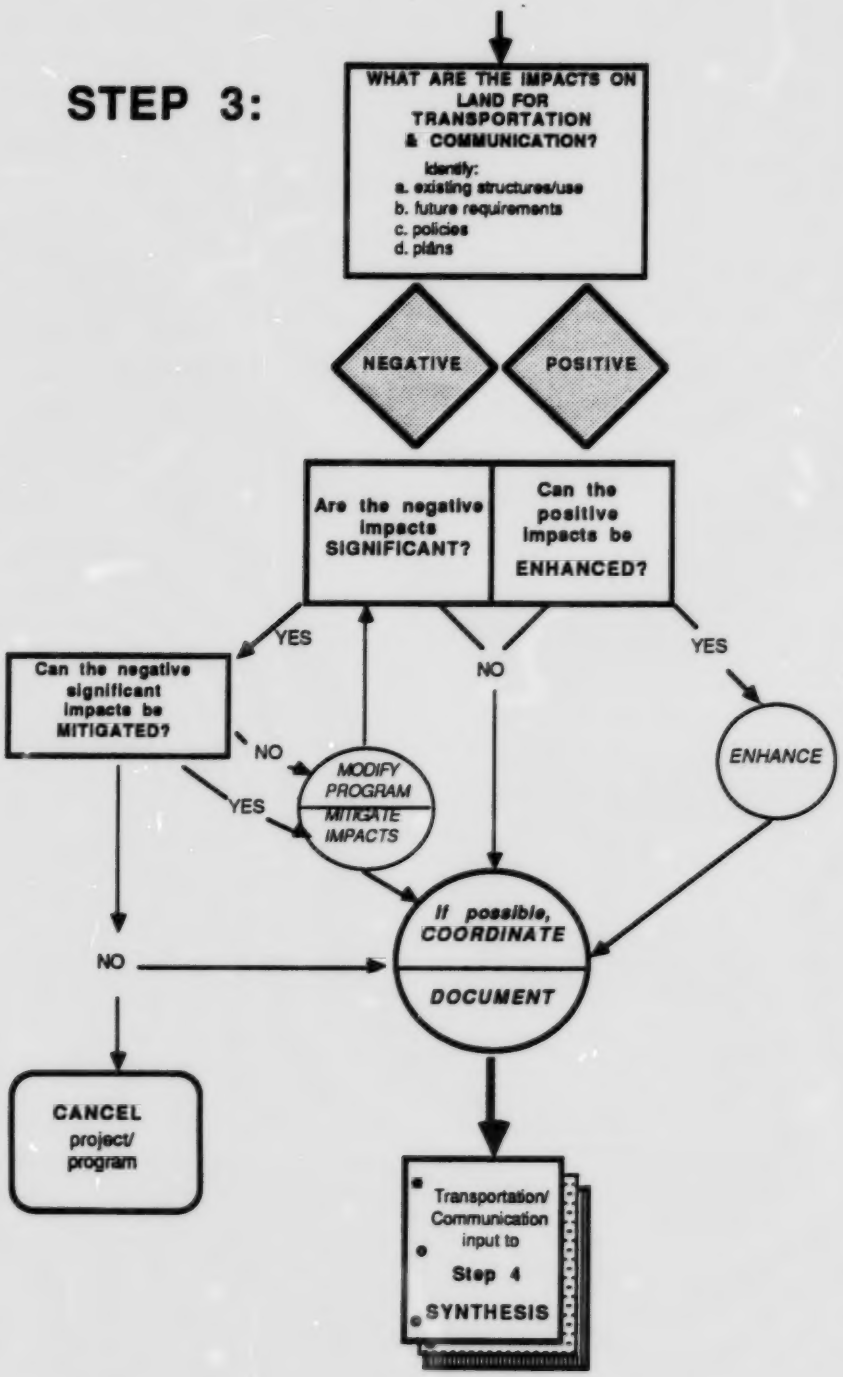
The impact on land required for **transportation and communication services** will be considered.

Appropriate action will be taken to help ensure that it will be **available for future requirements**.

INTERPRETATION:

- **Transportation and communication facilities** include roads, highways, railways, ports, harbours, airports, airstrips and float-plane bases, pipelines, electricity transmission lines, communications transmission towers and lines, ancillary structures and land uses, and other fixed construction or engineering work. Related structures include, for example, gas plants, batteries and metering stations for pipelines, and substations for transmission lines.
- Areas required for transportation and communication include water areas, as well as land and water areas temporarily or permanently covered with ice.
- Transportation **purposes**: people, goods (including liquids and gases), energy, or information.

Step 3 is illustrated in the following diagram which outlines the process for assessing impacts on land for transportation and communication.
It is assumed that **existing or potential impacts** have been identified in the program overview, Step 1 and Step 2.



I. IMPACTS ON LAND FOR TRANSPORTATION AND COMMUNICATION

Identify the following concerns in the area where the program will impact, including both the precise site/area for the program and the surrounding lands:

A. **existing structures and use**
B. **future requirements**
C. **policies** (sector-specific, such as roads, airports, ports, harbours, pipelines, radio and telecommunications, etc.).
D. **plans** (physical planning on ground; see also Guideline 10: Local, Regional and Provincial Concerns). For example, transportation components of local plans and zoning; federal and provincial/territorial facility plans and routes.

INFORMATION :

A. EXISTING STRUCTURES AND USE

Transportation and communication facilities can be identified from their various requirements on land and water; they are usually a combination of:

1. site-specific (large-scale): such as ports, harbours, airports, airstrips, and float-plane bases;
2. site-specific (small-scale, may be repetitive): for example, fixed structures to facilitate aerial transmission lines and communication tower networks, including support facilities on ground and safety zones;
3. linear (extended in spatial scale): such as roads, highways, railways, pipelines.

B. FUTURE REQUIREMENTS

Future land requirements for transportation and communication are outlined in sector-specific or area-specific policies and plans (see below).

C. POLICIES

Sector-specific for roads, highways, ports, harbours, airports, railways, pipelines, radio and telecommunications, etc.(Federal, Provincial/Territorial).

D. PLANS - Physical Planning.

Local, regional, and provincial/territorial policies and plans must be considered. See also Guideline 10.

In principle, shared rights- of-way or common service corridors to accommodate linear transportation and communication facilities are desirable in order to minimize adverse social, economic, biological, and environmental effects.

? **- WHAT ARE THE SPECIFIC IMPACTS ON LAND FOR TRANSPORTATION AND COMMUNICATION?**

1. Is the program area or the surrounding lands used for transportation and/or communication services?
2. Will there be future demands for transportation or communications services in the area where the program will impact?
3. Are there any existing federal, provincial/territorial, or municipal transportation or communication policies or plans for the program area?
4. Are there any possible effects on access to transportation or communication services or structures in surrounding areas ?

No impacts: - Document and proceed to the synthesis, Step 4.

Yes - identified impacts (positive or negative): determine if impacts are significant.

II. SIGNIFICANCE OF IMPACTS

Determining significance is largely a matter of judgment, but the following factors will help in assessing program impacts. Effects may range from a complete elimination of any possibility of transportation or communication, through to indirect effects on some aspects, or the potential for such land uses.

Magnitude
Prevalence
Duration
Frequency
Risk
Public concern
Provincial/territorial concern
Compatibility
Preclusion
Sustainability
Opportunity cost
Precedent

These factors are explained above in General Approach - Step 3 : significance of impacts.)

? ARE THE NEGATIVE IMPACTS OR CONFLICTS SIGNIFICANT?	CAN POSITIVE IMPACTS BE ENHANCED?
YES Find out if the significant impacts or conflicts can be mitigated.	Co-ordinate/Enhance.

NO If possible, co-ordinate; document; and proceed to the synthesis, Step 4.

III. MITIGATION OF SIGNIFICANT NEGATIVE IMPACTS AND ENHANCEMENT OF POSITIVE IMPACTS

From the preceding identification of how a program will affect land for transportation and communication, determine if anything can be done to **mitigate negative impacts** either by:

- program design or siting alternatives;
- modified means of carrying out the program;
- scheduling; or
- rehabilitation after the program.

Enhancement of positive impacts can be accomplished either by:
- co-ordination with other programs or land uses;
- increased environmental quality;
- resource-use efficiency;
- resource sustainability; or
- economic sustainability through wise resource use.

For example:

Land ownership, tenure, use

- How can co-ordination or integration with other land uses (forestry, agriculture, habitat, etc.) be accomplished? (e.g. planning)
- Can any special management actions or practices decrease the negative impacts on land for transportation and communication?
- Can other uses be introduced, or re-introduced, after program activities are finished?

Construction

- Can a smaller land base be used for the program?
- Can the impacts on transportation and communication networks surrounding a construction area be decreased through appropriate engineering and construction procedures, and well-planned access roads to the construction site?

Regulations, allocation

- Can regulations be modified to minimize the effects on land for transportation and communication? (e.g. licences, zoning, designations.)
- Can the planned program area be relocated to land where there would be fewer implications for transportation and communication?

Research and information

- Can new technologies and practices be co-ordinated for integrated land use with other sectors? Are there any prospects of joint research activities? Can transfer or diffusion of technology and knowledge enhance positive impacts?

? CAN THE SIGNIFICANT NEGATIVE IMPACTS BE MITIGATED?	CAN POSITIVE IMPACTS BE ENHANCED?
NO:	**NO:**
1. Modify program, and re-determine if there are any impacts on land for transportation or communication; or 2. Cancel program; or 3. Document for the synthesis (Step 4).	Document for the synthesis.

YES: Mitigate and/or enhance, and document for the synthesis, Step 4.

Guideline 6

LAND FOR WATER CONSERVATION

IF THERE ARE, OR APPEAR TO BE, ANY EXISTING OR POTENTIAL IMPACTS ON WATER-RESOURCE MANAGEMENT AREAS, THE SIGNIFICANCE OF THESE IMPACTS SHOULD BE ASSESSED.

FPLU GUIDELINE:

The impact of policies and programs on **watersheds, aquifers, recharge and storage areas, and other lands** critical to the **quality and quantity** of the nation's **water supply** will be considered.

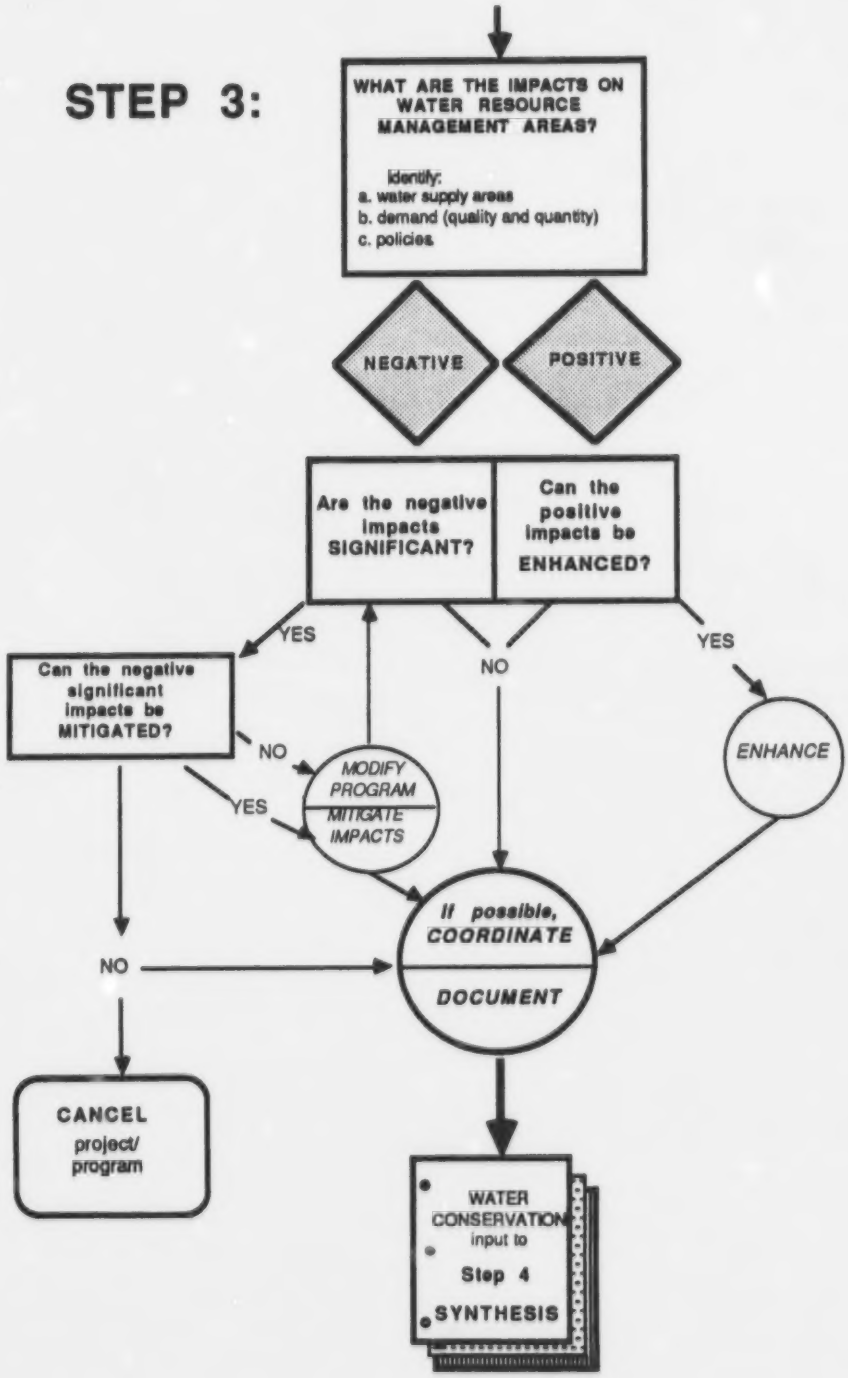
Appropriate action will be taken to ensure their protection.

INTERPRETATION:

• Potential **water resources** are:

- **Groundwater**: water stored in the ground, in both the overburden and the bedrock. Groundwater is categorized as: aquifers, recharge areas, or discharge areas.
- **Surface waters**: lakes, rivers, streams, ponds, and springs.
- **Wetlands**: permanently or intermittently wet land, peatlands, bogs, fens, marshes, swamps, estuaries, shallow water (such as the prairie potholes), and land-water margins, including marine areas.
- **Watercourses**: the surface water or swamp, including its shore and bed. A watercourse may be dry for part of the year.

Step 3 is illustrated in the following diagram which outlines the process for assessing impacts on water-resource management areas.
It is assumed that **existing or potential impacts** have been identified in the program overview, Step 1 and Step 2.



I. IMPACTS ON WATER-RESOURCE MANAGEMENT AREAS

Identify the following water conservation concerns in the area where the program will impact, including both the precise site/area for the program and the surrounding lands:

a. potential water resources
b. demand/use
c. policies and plans

INFORMATION :

A. POTENTIAL WATER RESOURCES ARE:

- **Groundwater**: water stored in the ground (the overburden and the bedrock), important as aquifers, recharge areas, or discharge areas.
- **Surface waters**: lakes, rivers, streams, ponds, and springs.
- **Watercourses**: the surface water or swamp, including its shore and bed. A watercourse may be dry for part of the year.
- **Wetlands** are transitional areas between terrestrial and aquatic ecosystems, i.e. permanently or intermittently wet land, peatlands, shallow water (such as the prairie potholes), and land-water margins.

B. WATER DEMAND/USE (INCLUDES BOTH **QUALITY** AND **QUANTITY**):

- drinking water - both domestic and municipal;
- municipal water and sewer systems;
- industrial and thermal water;
- water quality maintenance;
- irrigation, and soil moisture control;
- transportation - shipping and logging;
- hydro-electric energy development;
- urban development and agricultural expansion, through dyking, drainage, and infilling;
- habitat for fish and wildlife;
- recreation - canoeing, swimming, and aesthetic values;
- natural heritage (Heritage River) protection; Marine Parks;
- education - demonstration and research;
- traditional lifestyles (native peoples).

C. POLICIES AND PLANS

1. **Federal responsibilities** are: the protection of navigable waters; shipping; some specific aspects of environmental protection; drinking water in areas of federal jurisdiction; international water management; federal-provincial-territorial co-operation in water-resources planning and management. Federal and provincial /territorial governments have divided jurisdiction for fisheries (inland and ocean). The federal government is also responsible for lands and waters in the territories, national parks, and Indian reserves.

Other federal policies to consider are:

- **The Federal Water Policy** (1987) was established to encourage the use of freshwater in an efficient and equitable manner, consistent with the social, economic, and environmental needs of present and future generations.

- **Federal Water Quality Guidelines.**

(cont.)

- A **Federal Policy on Wetland Conservation** is currently (1989) being developed (Environment Canada).
- **Water - Fish Habitat**
  Consult Policy for the Management of Fish Habitat, Department of Fisheries and Oceans.
- Water and wetland areas important as fish, waterfowl, and other wildlife **habitats** - see Guideline 8-Habitats.

2. **The Provinces** have the authority to legislate on all aspects (industrial and domestic) of water supply, use, pollution control, hydro-electric and non-nuclear power development, irrigation, and recreation. Provincial/territorial policies and plans must be considered.

3. **Municipal, or local/regional policies or plans** may have been prepared for water conservation or water management purposes. **Water-basin management** plans and inventories exist in certain regions.

? - **WHAT ARE THE SPECIFIC IMPACTS ON WATER-RESOURCE MANAGEMENT AREAS?**

1. Does the program area have any potential effect on water quality or quantity in water-supply areas ?
2. Is the area used for water-management activities?
3. Are there any existing or future federal or provincial/territorial policies or plans for the program area?
4. Are there wetlands within the program area or the surrounding area?
5. Are there any possible impacts on the water supply (quality or quantity) from surrounding areas and land uses?

No impacts: - Document and proceed to the synthesis, Step 4.

Yes - identified impacts (positive or negative): determine if impacts are significant.

II. SIGNIFICANCE OF IMPACTS

Determining significance is largely a matter of judgment, but the following factors will help in assessing program impacts. Effects may range from the complete elimination of any possible water use, through to indirect effects on certain aspects of the potential water-supply or water quality.

Magnitude
Prevalence
Duration
Frequency
Risk
Public concern
Provincial/territorial concern
Compatibility
Preclusion
Sustainability
Opportunity cost
Precedent

(These factors are explained above in General Approach - Step 3 : significance of impacts.)

?	**ARE THE NEGATIVE IMPACTS OR CONFLICTS SIGNIFICANT?**	**CAN POSITIVE IMPACTS BE ENHANCED?**
YES	Find out if the significant impacts or conflicts can be mitigated.	Co-ordinate/Enhance.
NO	If possible, co-ordinate; document; and proceed to the synthesis, Step 4.	

III. MITIGATION OF SIGNIFICANT NEGATIVE IMPACTS AND ENHANCEMENT OF POSITIVE IMPACTS

From the preceding identification of how a program will affect water-resource management areas, determine if anything can be done to **mitigate negative impacts** either by:

- program design or siting alternatives;
- modified means of carrying out the program;
- scheduling; or
- rehabilitation after the program.

Enhancement of positive impacts can be accomplished either by:
- co-ordination with other programs or land uses;
- increased environmental quality;
- resource-use efficiency;
- resource sustainability; or
- economic sustainability through wise resource use.

For example:
Land ownership, tenure, use
- How can co-ordination or integration with other land uses be accomplished? (e.g. recreation, tourism, forestry, agriculture, mining)
- If effects are only temporary or seasonal, can the program be rescheduled?

- Can any special management actions or practices decrease the negative impacts on water-supply areas, or maintain the water quality?
- Can other uses be introduced, or re-introduced, after program activities are finished?
- Is it possible to use replacement measures with the aim of sustaining lands for water conservation and management?

Construction
- Can a smaller land base be used for the program?
- Can the impacts on water-supply areas surrounding a construction site be decreased through appropriate engineering and construction procedures, and well-planned access roads to the construction site?

Regulations, allocation
- Can regulations be modified to minimize the effects on land for water conservation? (e.g. licences, zoning, designations.)
- Can the planned program area be relocated to land with fewer implications for water conservation? (e.g. urban, suburban, and industrial development; transportation networks, roads, railways, etc; energy powerlines and pipelines.)

Financial incentives
- Can withholding financial support for program activities maintain the potential for water supply/water quality or conservation? (e.g. sectoral and regional subsidies; funding for infrastructure and construction.)

Research and information
- Can new technologies and practices be co-ordinated for integrated land use with other sectors? Are there any prospects of joint research activities? Can transfer or diffusion of technology and knowledge enhance positive impacts?

? CAN THE SIGNIFICANT NEGATIVE IMPACTS BE MITIGATED?	CAN POSITIVE IMPACTS BE ENHANCED?
NO: 1. Modify program, and re-determine if there are any impacts on water resource management areas; or 2. Cancel program; or 3. Document for the synthesis (Step 4).	**NO:** Document for the synthesis.

YES: Mitigate and/or enhance, and document for the synthesis, Step 4.

Guideline 7

HERITAGE LAND

IF THERE ARE , OR APPEAR TO BE, ANY POTENTIAL IMPACTS ON HERITAGE LAND, THE SIGNIFICANCE OF THESE IMPACTS SHOULD BE ASSESSED.

FPLU GUIDELINE:

The impact of policies and programs on lands which are of particular value because of **historical, cultural, recreational, aesthetic or ecological importance** will be considered and

appropriate action will be taken to **preserve or enhance their value** as a national heritage.

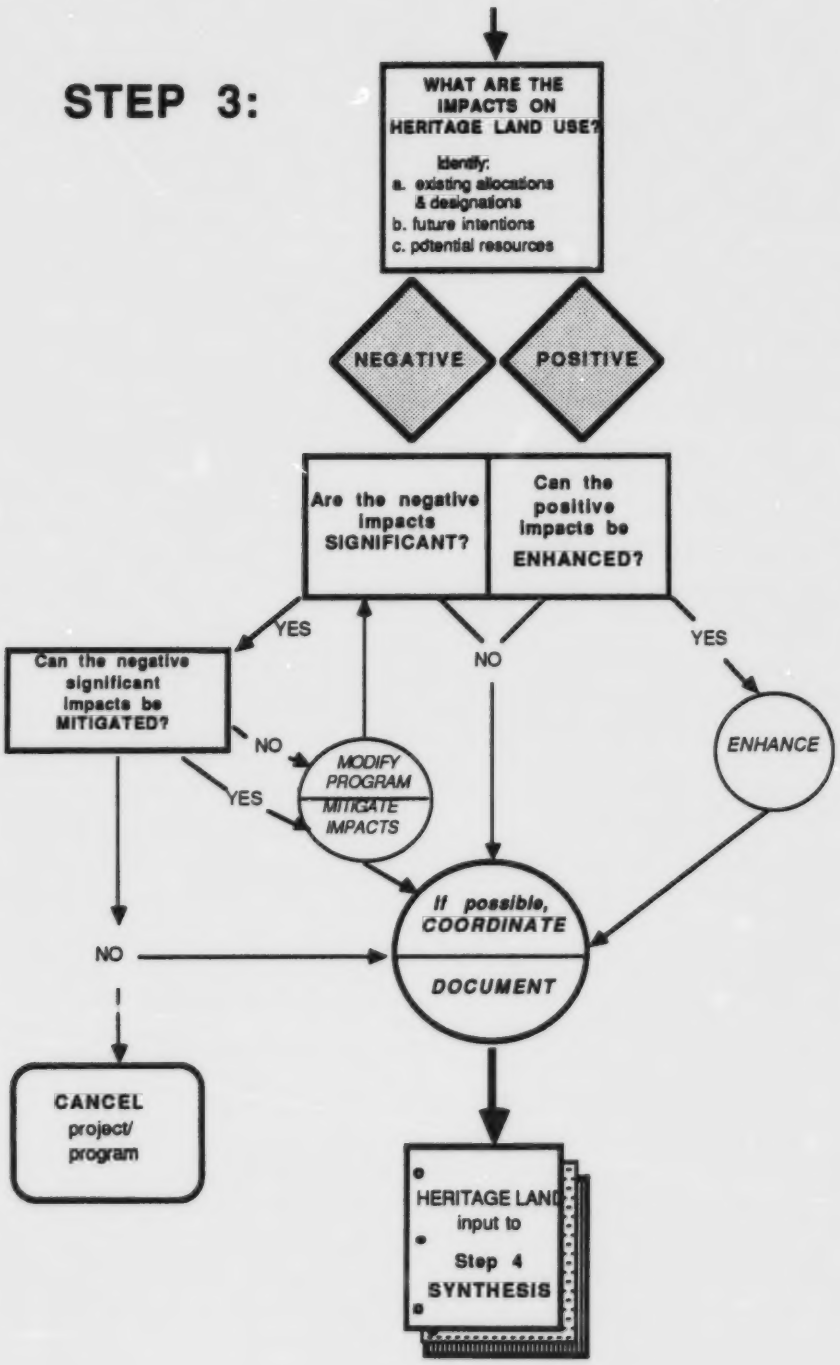
INTERPRETATION:

Heritage lands can be divided into three categories:

LANDS	VALUES	EXAMPLES *
A. Natural heritage	Scientific / ecological	National Parks Marine Parks Provincial Parks Ecological Reserves
B. Man-made heritage	Historical / cultural	Archaeological Sites Heritage Buildings National Historic Sites
C. Outdoor recreation	Recreational /aesthetic	Provincial Parks Recreation Areas National Parks Regional Parks Municipal Parks

**) further examples, see p. 57*

Step 3 is illustrated in the following diagram which outlines the process for assessing impacts on heritage land use and structures.
It is assumed that **existing or potential impacts** have been identified in the program overview, Step 1 and Step 2.



I. HERITAGE LAND-USE IMPACTS

To identify the heritage land/structure

a. existing designations and allocations
b. future intentions in systems plans, etc.

for the area where the program will impact, including both the precise area/site for the program and the surrounding lands, the following information may be required. *(More detailed sources for information are identified in Appendix 3.7.)*

INFORMATION :

A. EXISTING DESIGNATIONS, ALLOCATIONS, AND POLICIES

• **Federal:** such as National Parks, Heritage Buildings, Heritage Rivers, National Historic Sites, etc., are for the most part administered by Environment Canada (i.e. Parks Canada, Canadian Wildlife Service)and Indian and Northern Affairs Canada (DIAND). Further information on archaeological sites can be obtained from the ASC - Archaeological Survey of Canada.

• **Provincial/Territorial:** for example, Ecological Reserves, Wilderness Areas, Provincial or Territorial Parks, Heritage Sites, and Areas of Natural and Scientific Interest (ANSIs). Responsible administering departments vary by province/territory.

• **International:** for example, World Heritage Sites (UNESCO), Wetlands of International Importance (Ramsar), and Man and the Biosphere Program (MAB).

B. INTENTIONS IN SYSTEMS PLANS, ETC.

Future intentions have in many cases been identified in various systems plans, both federal and provincial/territorial.

Future opportunities for heritage designations and recreation may also have been identified in plans and long-range programs. Future opportunities for recreation can also be identified through inventories, for example, the land capability classification for outdoor recreation, (Canada Land Inventory - CLI).

Comprehensive land-use plans and systems plans provide valuable information, since lands have been inventoried and mapped, evaluated, and categorized or classified. Furthermore, goals for protection and allocation have been set, and priorities have been made. Intentions can be indicated through various stages in the planning process; they could be either recently classified, or negotiable for inclusion in final designations.

C. POTENTIAL HERITAGE RESOURCES

Potential heritage resources and values, for example, archaeological and ecological values not yet identified for a proposed program area. See also the Archaeological Policy (Department of Communications).

? - WHAT ARE THE IMPACTS ON HERITAGE LAND/STRUCTURES?

1. Does the land, structure, or building have any international, federal, provincial/territorial, or municipal designations?
2. Are there any future intentions for designations, i.e. is the area identified in systems plans or comprehensive land-use plans?
3. Are there any possible impacts on heritage resources surrounding the program area/site?
4. Does the area have identified or potential ecological, historical, cultural, or aesthetic values, or high capability for recreational use?

No impacts: - Document and proceed to the synthesis, Step 4.
Yes - identified impacts (positive or negative): determine if impacts are significant.

II. SIGNIFICANCE OF IMPACTS

Determining significance is largely a matter of judgment, but the following factors will help in assessing program impacts. Effects may range from a complete elimination of heritage values or the possibility of recreational activities, through to indirect effects on certain aspects of the value of heritage or its potential.

Magnitude
Prevalence
Duration
Frequency
Risk
Public concern
Provincial/territorial concern
Compatibility
Preclusion
Sustainability
Opportunity cost
Precedent

(These factors are explained above in General Approach - Step 3 : significance of impacts.)

? ARE THE NEGATIVE IMPACTS OR CONFLICTS SIGNIFICANT?	CAN POSITIVE IMPACTS BE ENHANCED?
YES Find out if the significant impacts or conflicts can be mitigated.	Co-ordinate/Enhance.

NO If possible, co-ordinate; document; and proceed to the synthesis, Step 4.

III. MITIGATION OF SIGNIFICANT NEGATIVE IMPACTS AND ENHANCEMENT OF POSITIVE IMPACTS

From the preceding identification of how a program will affect heritage lands and structures, determine if anything can be done to **mitigate negative impacts** either by:

- program design, limitations, or siting alternatives;
- modified means of carrying out the program;
- scheduling; or
- rehabilitation after the program.

Enhancement of positive impacts can be accomplished either by:
- co-ordination with other programs or land uses;
- increased environmental quality;
- resource-use efficiency;
- increased knowledge base (e.g. archaeological and ecological resources);
- resource sustainability, protection, or preservation; or
- economic sustainability through wise resource use.

For example:

Land ownership, tenure, use

- How can co-ordination or integration with other land uses be accomplished? (e.g. forestry, habitat management and hunting, agriculture, tourism, mining)
- If effects are only temporary or seasonal, can the program be rescheduled? (e.g. impact of forestry practices on recreation use)
- Can any special management actions or practices decrease the negative impacts, or maintain heritage values? (i.e. protective measures or data recovery)
- Can any heritage activity, i.e. recreation, be introduced, or re-introduced after program activities are finished?

Construction

- Can a smaller land base be used for the program ?
- Can the negative impacts on heritage lands surrounding a construction site be decreased through appropriate engineering and construction procedures, and well-planned access roads to the construction site?

Regulations, allocation

- Can regulations be modified to minimize effects on heritage values? (e.g. licences, zoning, designations.)
- Can the planned program area be relocated on land with lower heritage values ? (e.g. urban, suburban, and industrial development; transportation networks, roads, railways, etc.; energy powerlines and pipelines.)

Financial Incentives

- Can withholding financial support for program activities maintain the heritage values? (e.g. sectoral and regional subsidies; funding for infrastructure and construction.)
- Could conditions for wise resource use be attached to financial incentives (ERDAs)?

Research and Information

- Can new technologies and practices be co-ordinated for integrated land use with other sectors? Are there any prospects for joint research activities? Can transfer or diffusion of technology and knowledge enhance positive impacts? Can research increase the knowledge base for undiscovered heritage values?

? CAN THE SIGNIFICANT NEGATIVE IMPACTS BE MITIGATED?	CAN POSITIVE IMPACTS BE ENHANCED?
NO: 1. Modify program, and re-determine if there are any impacts on heritage land ; or 2. Cancel program; or 3. Document for the synthesis (Step 4).	**NO:** Document for the synthesis.

YES: Mitigate and/or enhance, and document for the synthesis, Step 4.

Guideline 8

HABITATS

IF THERE ARE, OR APPEAR TO BE, ANY POTENTIAL IMPACTS ON HABITATS, THE SIGNIFICANCE OF THESE IMPACTS SHOULD BE ASSESSED.

FPLU GUIDELINE:

The impacts of policies and programs on **fragile and critical habitats** will be considered and

appropriate action will be taken to **prevent unnecessary damage** to such lands.

INTERPRETATION:

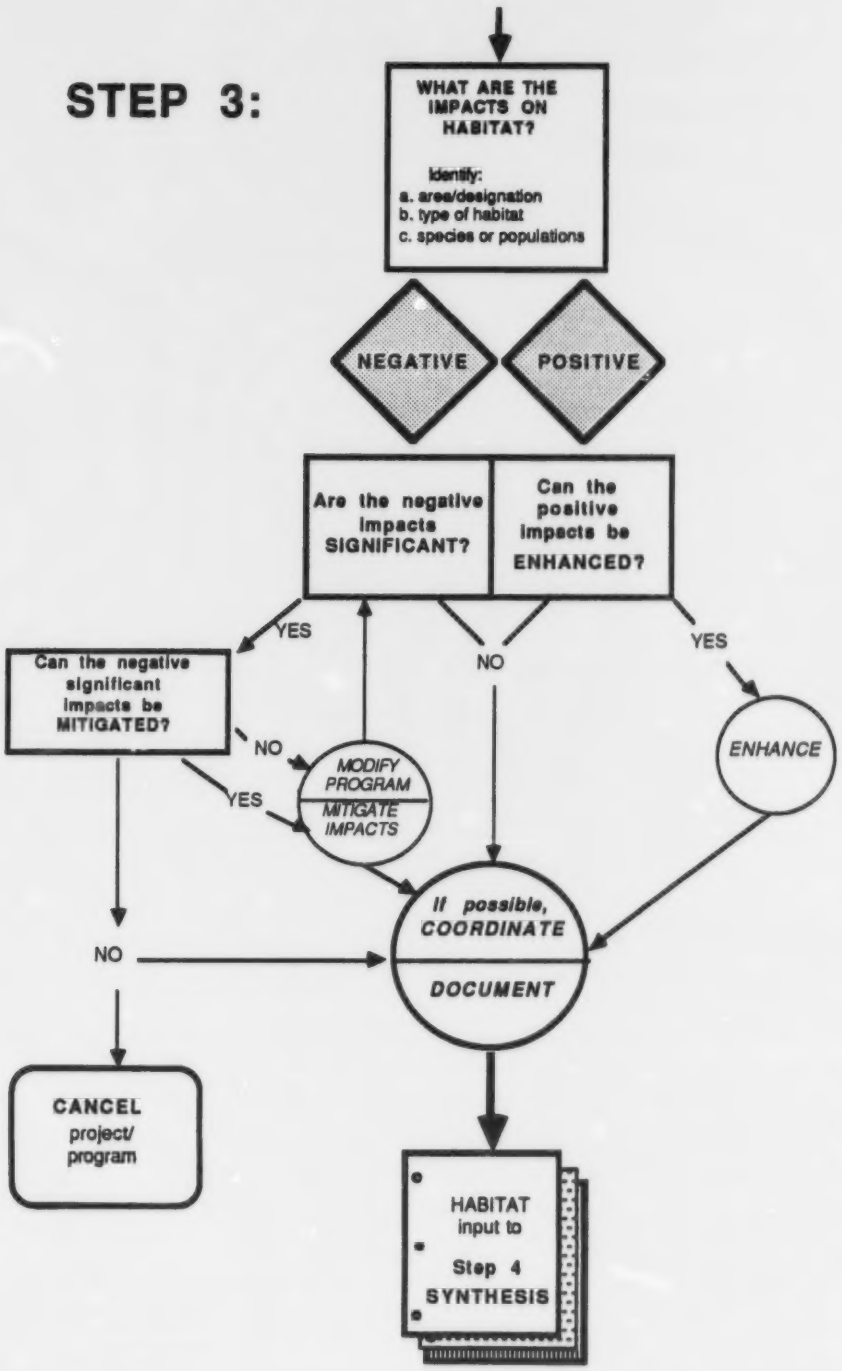
- Assessing land use for habitats can be approached from different viewpoints:

  a) the specific geographical **area or site** concerned;
  b) the general **type of habitat**; or
  c) particular **species or populations** of flora or fauna dependent on the habitat.

- **Fragile, critical, or sensitive habitats** are those which are:
  - especially sensitive to changed environmental conditions;
  - required for the maintenance or survival of wild animal or plant individuals or populations, or ecosystems;
  - important for the survival of rare, threatened, or endangered species; or
  - significant for human use and appreciation.

- Activities influencing habitat (including land and water areas) should support improved habitat capability, and sustain or enhance productivity of wild plants and animals.

Step 3 is illustrated in the following diagram which outlines the process for assessing impacts on habitat.
It is assumed that **existing or potential impacts** have been identified in the program overview, Step 1 and Step 2.



I. HABITAT IMPACTS

Habitats can be considered from different viewpoints:

a) The habitat may be located in a specific geographical **area or site** which may encompass:
   - existing designated and protected areas (international, national, federal, provincial/territorial, or local).
   - future intentions to protect the area in systems plans, etc.

b) The **type of habitat** may have been defined as **fragile, critical, sensitive** or otherwise of high importance to ecosystem maintenance (e.g. migration routes) or human use.

c) Rare, threatened, or endangered **species** or unique, sensitive, or important **populations** of flora or fauna may be dependent on particular habitat or on the area concerned.

Identify these habitats of interest for the area affected by the program, including both the precise area/site for the program and the surrounding lands.

INFORMATION :

a) AREA OR SITE

1. Existing designations and allocations

- **International** designations and agreements in Canada include: Wetlands of International Importance (Ramsar Convention), and areas identified under the North American Waterfowl Management Plan.

- **Federal** designations, such as Migratory Bird Sanctuaries, National Parks, and National Wildlife Areas, are administered mostly by Environment Canada (Canadian Wildlife Service and Parks Canada), and Indian and Northern Affairs Canada (DIAND). *See further, Appendix 3:8.*

- **Provincial/territorial** designations include, for example, Wildlife Management Areas, Provincial Parks, Wilderness Areas, and Ecological Reserves. Responsible administering agencies vary by province/territory. Provincial/territorial legislation and policies should be

2. Intentions in systems plans, etc.

Future intentions have in some cases been identified in various systems plans, international, federal, and provincial/territorial. **Comprehensive land-use plans and systems plans** provide valuable information. In system plans, goals for protection and allocation have been set and priorities have been made. For example, Parks Canada's classification of Natural Areas of Canadian Significance (NACS) includes wildlife considerations, as does the North American Waterfowl Management Plan

3. Other inventoried land areas:

- **Local, regional, and site-specific** studies and inventories give valuable and more detailed information. This information can be obtained from provincial/territorial or federal regional offices. Information on habitats may also be obtained from organizations such as Wildlife Habitat Canada, Ducks Unlimited, and Nature Conservancy of Canada.

(cont.)

- **Northern Land Use Information Series (NLUIS)** - identifies critical and important wildlife habitats in Yukon and the Northwest Territories.

- **Canadian Council on Ecological Areas (CCEA):** Maintain register of ecological areas.

- **The Canada Land Inventory (CLI)** land capability classification for wildlife rates the ability of land to produce and support wildlife (including wintering), based on the optimum vegetation stage that can be maintained with good wildlife management practices. The CLI considers only two types of wildlife: **ungulates and waterfowl.**

- Other areas are long-term **research sites,** and areas where **habitat enhancement** is on-going or actively considered.

b) TYPE OF HABITAT

1. Habitat types that have been identified as **critical, fragile, or sensitive.** Such habitat types include **migration routes.** Particular management practices are required for fragile or sensitive habitat types, endangered species, ecosystem diversity, and other important sites for wildlife populations (e.g. wintering, breeding, staging, calving).

2. Habitat types considered in **other habitat resource policies are,** for example:

- **Guidelines for Wildlife Policy in Canada (1982),** Environment Canada.
  Important elements of the guidelines are the extension of the concept of wildlife to include habitat, and the extension of policies and laws to allow the recognition or protection of any wild animals - including species other than those which are hunted, fished, or commercially exploited. See also **Canada Wildlife Act (1973).**

- **Wetlands:**
  A Federal Policy on Wetland Conservation is currently (1988) being developed (Environment Canada). *See also Guideline 6 - Land for Water Conservation.*

- **North American Waterfowl Management Plan**

- **Water - Fish Habitat**
  see the Policy for the Management of Fish Habitat, Department of Fisheries and Oceans, which has identified, as a guiding principle, no net loss of productive fish habitat.

c) SPECIES OR POPULATIONS

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) gives five status categories for species: **rare, threatened, endangered, extirpated, and extinct.** *(See Appendix 3:8 for definitions.)*

? - WHAT ARE THE SPECIFIC HABITAT IMPACTS?

1. Does the land have any international, federal, provincial/territorial, or municipal designations; are there any future intentions for protection or conservation; or is the area used for research or habitat enhancement?

2. Does the land have high capability to produce or support wildlife?

3. Has the type of habitat been identified as fragile, critical, or sensitive?

4. Are there any conflicts with other existing resource policies (such as Wetlands; Waterfowl; Fish Habitat; Wildlife policies, or provincial/territorial policies)?

5. Are there any rare, threatened, or endangered species in the area, or species dependent on that particular type of habitat?

No impacts: - Document and proceed to the synthesis, Step 4.

Yes - identified impacts (positive or negative): determine if impacts are significant.

II. SIGNIFICANCE OF IMPACTS

Determining significance is largely a matter of judgment, but the following factors will help in assessing program impacts. Effects may range from a complete elimination of habitats or any possibility of wildlife, through to indirect effects on certain parts of habitats or fauna and flora potential.

Magnitude
Prevalence
Duration
Frequency
Risk
Public concern
Provincial/territorial concern
Compatibility
Preclusion
Sustainability
Opportunity cost
Precedent

(These factors are explained above in General Approach - Step 3 : significance of impacts.)

? ARE THE NEGATIVE IMPACTS OR CONFLICTS SIGNIFICANT?	CAN POSITIVE IMPACTS BE ENHANCED?
YES Find out if the significant impacts or conflicts can be mitigated.	Co-ordinate/Enhance.

NO If possible, co-ordinate; document; and proceed to the synthesis, Step 4.

III. MITIGATION OF SIGNIFICANT NEGATIVE IMPACTS AND ENHANCEMENT OF POSITIVE IMPACTS

From the preceding identification of how a program will affect habitat, determine if anything can be done to **mitigate negative impacts** either by:

- program design or siting alternatives;
- modified means of carrying out the program;
- scheduling; or
- rehabilitation after the program.

Enhancement of positive impacts can be accomplished either by:
- co-ordination with other programs or land uses;
- increased environmental quality;
- resource-use efficiency;
- resource sustainability; or
- economic sustainability through wise resource use.

For example:

Land ownership, tenure, use

- How can co-ordination or integration with other land uses be accomplished? (e.g. with forestry and agriculture to improve habitat quality.)
- Wildlife may be more sensitive to disturbances during certain seasons. If effects are only temporary or seasonal, can the program be rescheduled?
- Can any special management actions or practices decrease the negative impacts on habitats, or maintain or enhance habitat quality?
- Can habitat be rehabilitated? Can wildlife or fish be introduced, or re-introduced, after program activities are finished ?
- Is it possible to use replacement or enhancement measures to achieve "no net loss" of habitat, habitat productivity, or the capability to sustain plants and animals? (Replacement or compensatory measures can, for example, consist of construction of a hatchery.)

Construction

- Can a smaller land base be used for the program?
- Can the impacts on habitats surrounding a construction site be decreased or mitigated through appropriate engineering and construction procedures, and well-planned access roads to the construction site?

Regulations, allocation

- Can regulations be modified to minimize effects on habitat? (e.g. licences, zoning, designations.)
- Can the planned program area be relocated on land with lower wildlife or habitat values? (e.g. urban, suburban, and industrial development; transportation networks, roads, railways, etc.; energy powerlines and pipelines.)

Financial Incentives

- Can withholding financial support for program activities maintain the habitats? (e.g. sectoral and regional subsidies; funding for infrastructure and construction.)

Research and Information

- Can new technologies and practices be co-ordinated for integrated land use with other sectors? (e.g. shelter planting to prevent soil erosion can have a positive impact on wildlife habitat). Are there any prospects of joint research activities? Can transfer or diffusion of technology and knowledge enhance positive impacts?

? CAN THE SIGNIFICANT NEGATIVE IMPACTS BE MITIGATED?	CAN POSITIVE IMPACTS BE ENHANCED?
NO: 1. Modify program, and re-determine if there are any impacts on habitat ; or 2. Cancel program; or 3. Document for the synthesis (Step 4).	**NO:** Document for the synthesis.

YES: Mitigate and/or enhance, and document for the synthesis, Step 4.

Guideline 9

HAZARD LAND

IF THERE ARE , OR APPEAR TO BE, ANY EXISTING OR POTENTIAL IMPACTS ON HAZARD LAND, THE SIGNIFICANCE OF THESE IMPACTS SHOULD BE ASSESSED.

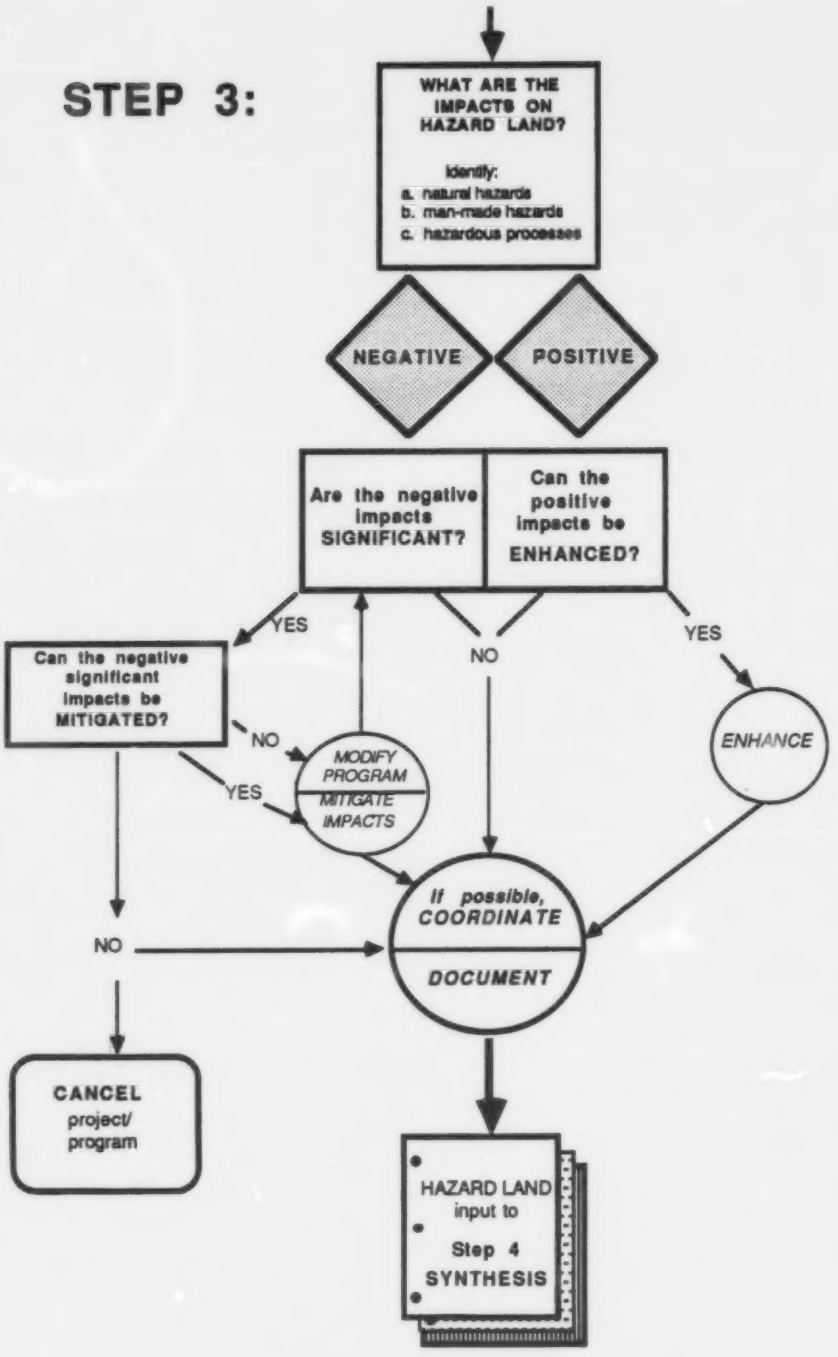
FPLU GUIDELINE:

Federal policies and programs will not contribute to **inappropriate use of hazard lands** or **inappropriate siting of hazardous processes**.

INTERPRETATION:

- **Hazard lands** are subject to hazards of two kinds: **natural** or **man-made:**
  - **Natural hazards** are, for example, floods, erosion, slumping, avalanches, and seismic activity.
  - **Man-made hazards** are sites and areas used for storage of toxic or radioactive waste or other materials which may cause risks to public health and safety or to the natural environment. Man-made hazard lands also include military ranges and training areas.
- **Hazardous processes** involves production, manipulation, or transportation of toxic, radioactive, or other materials and dangerous goods which may cause risks to public health and safety.
- **Inappropriate use** of hazard lands or **inappropriate siting** of hazardous processes could increase risks to human health or safety and the natural environment, or cause property or economic damage.

Step 3 is illustrated in the following diagram which outlines the process for assessing impacts on hazard land use.
It is assumed that **existing or potential impacts** have been identified in the program overview, Step 1 and Step 2.



I. INAPPROPRIATE USES OF HAZARD LANDS OR INAPPROPRIATE SITING OF HAZARDOUS PROCESSES

To identify if the land is subject to any natural or man-made hazards, information on the following categories of hazards should be obtained:

a. **Natural hazards**
b. **Man-made hazards**
c. **Hazardous processes**

INFORMATION:

A. NATURAL HAZARDS are, for example, floods, erosion, slumping, avalanches, forest fires, and seismic activity. Natural hazards can be categorized according to principal causal agent:

- **Meteorological/climatological**; e.g. blizzards, drought, flood, snow and frost, lightning and fire, tornadoes and windstorms, as well as anticipated significant changes in climate that are likely to affect land and its characteristics or land-based resources.
- **Geomorphological**; e.g. avalanches (rock or snow), landslides, erosion (slope or shore), earthquakes, and volcanic eruptions.
- **Biological**; such as fungal diseases, floral infestation (weeds, Poison ivy, red tide), bacterial, viral or protozoal diseases (malaria, rabies, hoof and mouth disease), and faunal infestation (termites, grasshoppers, spruce budworm).

B. MAN-MADE HAZARD LANDS are sites and areas used for extraction, production, transportation, storage, or disposal of toxic wastes or other materials that may cause risks to public health and safety. Such man-made hazards are, for example: landfills, disposal sites for radioactive or toxic waste, and certain industries. Other hazard lands are military ranges and training areas. Oil spills from pipelines and industry can be hazardous. Airports, railroads, and highways could also cause risk to public health and safety or to the natural environment.

Other man-made hazards could result when human activities increase the potential for natural hazards. Forest logging on slopes may cause erosion and landslides, and human use of fire may start forest fires.

C. HAZARDOUS PROCESSES involve production or manipulation of toxic or other materials which may cause risks to public health and safety or the natural environment (see above).

Sources for information are identified in Appendix 3:9.

? - WHAT IS INAPPROPRIATE USE OF HAZARD LAND OR SITING OF HAZARDOUS PROCESSES?

1. Is the program area or surrounding lands subject to meteorological, geomorphological, or biological hazards (for example, floods, slumping, erosion, avalanches, or seismic activity)? If the program area is located in a high-risk floodway or flood fringe, federal programs or funding are subject to regulation under the federal-provincial Flood Control and Flood Damage Reduction.

2. Does the program influence the siting of any hazardous processes?

3. Are there any possible long or short-term impacts on hazard lands surrounding or within the program area?

4. Will the program increase the risk for hazards, for example, by increasing the risk for erosion or avalanches?

5. Are there any existing policies or local, regional, or provincial plans regulating hazard land use or hazardous processes for the program area?

No impacts: - Document and proceed to the synthesis, Step 4.

Yes - identified impacts (positive or negative): determine if impacts are significant.

II. SIGNIFICANCE OF IMPACTS

Determining significance is largely a matter of judgment, but the following factors will help in assessing program impacts. All these factors will help determine the main concern about **risk**: if the hazard is of "high risk", "medium risk" or "low risk". The risk factor may depend on local or regional standards or definitions.

RISK	**Compatibility**
Magnitude	**Preclusion**
Prevalence	**Sustainability**
Duration	**Opportunity cost**
Frequency	**Precedent**
Speed of onset*	
Public concern	
Provincial/territorial concern	

(These factors are explained above in General Approach - Step 3 : significance of impacts.)

*) **Speed of onset:** slow onset: soil erosion, drought; examples for fast onset: flood, avalanche.

? **ARE THE NEGATIVE IMPACTS OR CONFLICTS SIGNIFICANT?**	**CAN POSITIVE IMPACTS BE ENHANCED?**
YES Find out if the significant impacts or conflicts can be mitigated.	Co-ordinate/Enhance.

NO If possible, co-ordinate; document; and proceed to the synthesis, Step 4.

III. MITIGATION OF SIGNIFICANT NEGATIVE IMPACTS AND ENHANCEMENT OF POSITIVE IMPACTS

From the preceding identification of how a program will affect hazard land, determine if anything can be done to **mitigate negative impacts** either by:

- program design or siting alternatives;
- modified means of carrying out the program;
- scheduling; or
- rehabilitation after the program.

Enhancement of positive impacts can be accomplished either by:
- co-ordination with other programs or land uses;
- increased environmental quality;
- resource-use efficiency;
- resource sustainability; or
- economic sustainability through wise resource use.

For example:

Land ownership, tenure, use

- How can co-ordination or integration with other land uses be accomplished? (e.g. siting of hazardous waste.)
- If the hazard risk varies according to time or season, can the program be rescheduled? (e.g. soil moisture factor when there is risk for slope erosion.)
- Can any special actions or practices decrease or prevent the risk for hazards ? (e.g. monitoring and mapping hazard lands)
- Can other land uses be introduced, or re-introduced, after program activities are finished?

Construction

- Can the construction site be protected against specific hazards?
- Concerning siting of hazardous processes - can the impacts on land surrounding a construction area be decreased ?

Regulations, allocation

- Can regulations be modified to discourage or prohibit inappropriate use of hazard-prone lands ? (e.g. prohibited establishment in flood-risk areas, restricted use, licences, zoning designations.)
- Can the program site be located on land with lower risk?

Financial Incentives

- Can withholding financial support for program activities prevent use of and discourage investment in hazard lands? (e.g. sectoral and regional subsidies; funding for infrastructure and construction) For example, the Flood Damage Reduction Program prohibits federal funding for development in designated high-risk floodways.

Research and Information

- Can new technologies and practices be co-ordinated for integrated land use with other sectors? Are there any prospects of joint research activities? Can transfer or diffusion of technology and knowledge enhance positive impacts?

? CAN THE SIGNIFICANT NEGATIVE IMPACTS BE MITIGATED?	CAN POSITIVE IMPACTS BE ENHANCED?
NO: 1. Modify program, and re-determine if there are any impacts on hazard land ; or 2. Cancel program; or 3. Document for the synthesis (Step 4).	**NO:** Document for the synthesis.

YES: Mitigate and/or enhance, and document for the synthesis, Step 4.

Guideline 10

LOCAL, REGIONAL AND PROVINCIAL/TERRITORIAL CONCERNS

IF THERE ARE ANY POTENTIAL CONFLICTS WITH LOCAL, REGIONAL, OR PROVINCIAL/TERRITORIAL CONCERNS, PLANS, ZONING OR LEGISLATION, THE SIGNIFICANCE OF THESE CONFLICTS SHOULD BE ASSESSED.

FPLU GUIDELINE:

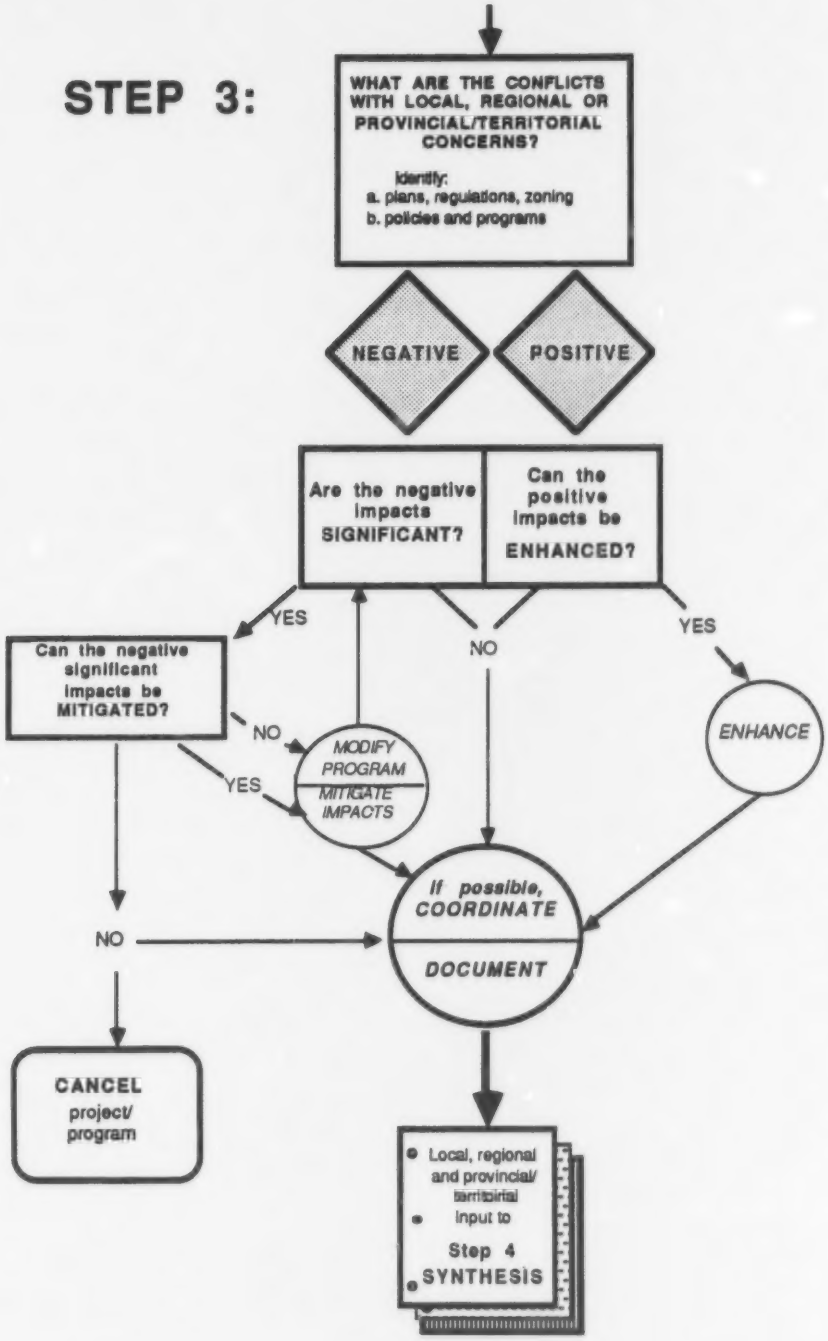
Local, regional, and provincial concerns, plans and zoning will be considered, and

appropriate action will be taken to ensure that the **federal influence** on land and local environments **has a positive impact.**

INTERPRETATION:

- **Zoning:** as stated in provincial/territorial regulations and guidelines or municipal by-laws.
- **Plans:** land-use plans; provincial/territorial, regional, district, or municipal, and Crown land plans.
- **Concerns:** other local, regional, or provincial/territorial government policies, programs, or intentions for land-use allocation and management, i.e. provincial/territorial planning policy statements or guidelines.

Step 3 is illustrated in the following diagram which outlines the process for assessing conflicts with local, regional and provincial/territorial concerns.
It is assumed that **existing or potential impacts** have been identified in the program overview, Step 1 and Step 2.



I. LOCAL, REGIONAL, OR PROVINCIAL/ TERRITORIAL LAND USE CONFLICTS

Consider the following factors (mechanisms for planning) for the area where the program will impact, including both the precise area/site and surrounding lands:

A. PLANS, REGULATIONS, AND ZONING

- Official plan designations and zoning provisions.

B. POLICIES, PROGRAMS, AND INTENTIONS

- Provincial/territorial policies, programs, guidelines, or intentions for land-use allocation and management, for the program area and adjacent land.

INFORMATION:

These concerns (A and B) are mostly expressed in:

I.	**Areal plans***	provincial/territorial/regional/municipal/district plans or policies concerning land-use allocation within a specific parcel of land or water.
II.	**Sectoral policies***	policies or programs outlining the intentions for future resource use or allocation. The size of the area concerned varies. For example: forest policies, mining policies, recreation programs, wetland policies, floodplain management, and agricultural land protection guidelines.

*) In the territories, such policies and plans are territorial and/or federal responsibilities.

? **- WHAT ARE THE SPECIFIC CONFLICTS WITH LOCAL, REGIONAL, OR PROVINCIAL/TERRITORIAL LAND USE CONCERNS?**

1. Has the land been included in any local, regional, or provincial/territorial plan or zoning?
2. Are there any other future intentions for the land expressed in local, regional, or provincial/territorial policies or programs?

No impacts: - Document and proceed to the synthesis, Step 4.

Yes - identified impacts (positive or negative): determine if impacts are significant.

II. SIGNIFICANCE OF CONFLICTS

Determining significance is largely a matter of judgment, but the following considerations will help in assessing program conflicts:

1. Determine the **level of inconsistency or land-use incompatibility** between the plan and the program impacts, i.e. the magnitude of the conflict.
2. Is there a review or approval of the plan in progress, or are there still opportunities to affect the plan or carry out re-zoning?
3. Determine the extent of public concern for the program area.

? ARE THE NEGATIVE IMPACTS OR CONFLICTS SIGNIFICANT?	CAN POSITIVE IMPACTS BE ENHANCED?
YES Find out if the significant impacts or conflicts can be mitigated.	Co-ordinate/Enhance.

NO If possible, co-ordinate; document; and proceed to the synthesis, Step 4.

III. MODIFICATION OF PROGRAM TO REDUCE CONFLICTS OR CO-ORDINATE POSITIVE IMPACTS

The main concern for program managers is, if possible, to avoid conflicts with local, regional, and provincial/territorial planning concerns, policies .

If significant conflicts have been identified, determine if anything can be done to reduce or eliminate the conflicts, either by:

- modification of the program (relocation, redesign to reduce height or density, landscaping, or payment for necessary infrastructure); or
- special agreements with the province/territory; or
- modification through an amendment of the plan for the area concerned.

Enhancement of positive impacts can be accomplished either by:
- co-ordination with other programs or land uses;
- increased environmental quality;
- resource-use efficiency;
- resource sustainability; or
- economic sustainability through wise resource use.

- CAN THE CONFLICTS BE REDUCED OR ELIMINATED?

Yes 1. Modify the program, document, and proceed, or re-assess the conflicts, or
2. Apply for an amendment to the areal plan and re-assess the conflicts.

No 1. Cancel the program, or
2. Document for the synthesis.

- CAN THE POSITIVE IMPACTS BE CO-ORDINATED AND/OR ENHANCED?

Yes Modify the program, co-ordinate, and document for the synthesis.

No Document for the synthesis.

Part three

Appendices

The following section, "the Yellow Pages", provides federal and provincial contact points and additional information sources for the ten land use guidelines.

Federal contacts listed are the Interdepartmental Committee on Land (ICL) representatives. The ICL was established by the government to co-ordinate and ensure the implementation of the FPLU.

Provincial and territorial contact points are offices which will provide access to further information (i.e. the "one-window" approach).

Appendix 3 provides more detailed information on background materials and information sources for the ten FPLU guidelines.

Appendix:

1. Federal contact points for information
2. Provincial and territorial contact points for information "one-window approach"
3. Additional facts and information on land use for FPLU Guidelines #1-10
4. Additional information on land-use impacts

APPENDIX 1

FEDERAL CONTACT POINTS FOR INFORMATION

FEDERAL CO-ORDINATION

- **ICL - the Interdepartmental Committee on Land** - has representatives from 16 federal departments. ICL members can provide advice and assistance.
- **The ICL Secretariat,** Corporate Planning Group, Policy and Coordination Branch, Environment Canada. Phone: (819) 994-5159.

THE ICL MEMBERS ARE:

Department:	Representative:
ICL chair	Dr. R.W. Slater (Environment Canada)
Agriculture Canada	Dr. L. Benzing-Purdie
Forestry Canada	Mr. F. Pollett/Mr. P. Addison
Canada Housing and Mortgage Corporation	Mr. D.A. Stewart
Energy, Mines and Resources	Dr. J.D. McTaggart-Cowan
Environment Canada	
Federal Environmental Assessment Review Office	Mr. C.D. Robertson
Finance	Mr. J. Beausoleil
Fisheries and Oceans	Mr. L. Dominy
Indian and Northern Affairs Canada	Mr. G. Bangay
National Defence	Major General J.E. Woods/ Mr. A. Downe
Public Works	Mr. R. Lafleur
Regional Industrial Expansion	Mr. B. Hafez
Science and Technology	Ms. C. Cheffins
Transport Canada	Mr. D. Wurtele
Treasury Board Secretariat	Mr. W. Roberts
Communications/Archaeology Policy	Ms. E. Snow

APPENDIX 2

PROVINCIAL AND TERRITORIAL CONTACT POINTS FOR INFORMATION "ONE-WINDOW APPROACH"

- British Columbia:	Ministry of Crown Lands Director, Land Policy Branch (604) 387-1803
- Alberta:	Department of Forestry, Lands and Wildlife Resource Planning Branch; Public Lands Division (403) 427-7413, 427-3498
- Saskatchewan:	Department of Urban Affairs Community Planning Services Branch Executive Director of Planning (306) 787-2268
- Manitoba:	Interdepartmental Planning Board; Secretariat (204) 945-6658
- Ontario:	Ministry of Municipal Affairs Office of Local Planning Policy Policy Coordinator (416) 585-6225
- Quebec:	Ministère de l'Énergie et des Ressources. Terres et Direction générale du domaine territorial Directeur (418) 643-7685
- New Brunswick:	Department of Municipal Affairs and Environment Environmental Protection Branch Assistant Deputy Minister (506) 453-2656
- Nova Scotia:	Maritime Resources Management Service Land Use Policy Committee Secretariat (902) 424-4963
- Prince Edward Island:	Land Use Commission Executive Director (902) 892-4259
- Newfoundland:	Interdepartmental Land Use Committee Department of Environment and Lands Chairman (709) 576-3227
- Yukon:	Y.T. : 1) Department of Renewable Resources; Director Parks, Resources and Regional Planning (403) 667-5905 2) Department of Community and Transportation Services, Director, Lands Branch (403) 667-5218
- Northwest Territories:	NWT: Department of Renewable Resources; Director, Land Use Planning (403) 920-6118

APPENDIX 3

ADDITIONAL FACTS AND INFORMATION ON LAND USE

The purpose of Appendix 3 is to provide federal program managers with additional sources of information. The list is by no means complete or exhaustive but does provide managers with a notion of the range and type of information they may wish to consider.

Contents:

Appendix:

3:1 Urban land

3:2 Agricultural land

3:3 Forest land

3:4 Non-renewable resource land

3:5 Land for transportation and communication

3:6 Land for water conservation

3:7 Heritage land

3:8 Habitats

3:9 Hazard land

3:10 Local, regional and provincial concerns

APPENDIX 3.1

INFORMATION SOURCES - URBAN LAND

1. DATA AND MAPS

Area Screening Canada Program
Mapping of federal properties. Bureau of Real Property Management, Treasury Board.

Canada's Cities and Their Surrounding Land Resources. Canada Land Inventory, Report No. 15, 1979. Lands Directorate, Environment Canada.

Land in Canada's Urban Heartland. Land Use in Canada Series No. 27, 1985. Lands Directorate, Environment Canada.

2. LEGISLATION, POLICIES, AND PROGRAMS

Federal:	**Agency:**
Federal Land Management Principle	Bureau of Real Property Management Treasury Board
Flood Control and Flood Damage Reduction Program	DOE/Inland Waters Public Works Canada
Area Screening Canada Program	Bureau of Real Property Management Treasury Board

Provincial legislation (examples):

Land planning legislation (provincial/territorial, regional, and local)

3. CONTACT POINTS:

Federal agencies:

CMHC - Canada Mortgage and Housing Corporation
PWC - Public Works Canada
TB - Treasury Board; Bureau of Real Property Management

Provincial agencies (examples):

Urban Affairs
Municipal Affairs
Environment

APPENDIX 3.2

INFORMATION SOURCES - AGRICULTURE

1. DATA AND MAPS

Land capability and use

CLI - Canada Land Inventory. Soil Capability Classification for Agriculture, Report No.1, 1972. Lands Directorate, Environment Canada. CLI maps in scale 1:250,000.

ELC - Ecological Land Classification. Environment Canada.

CLDS - Canada Land Data System. State of Environment Reporting Branch, Environment Canada.

Provincial Soil Inventories

CANSIS - Canada Soil Information System

Agriculture Canada and provincial agencies: Soil Surveys (includes maps)

2. LEGISLATION AND POLICIES

Federal:

A National Agriculture Strategy - Ministers of Agriculture (1986)

National Soil Conservation Program

Provincial legislation and policies (examples):

Agricultural Land Reserves Act

Food Land Guidelines - Policy Statement

Food Land Preservation

Provincial protected areas (example):

Agricultural Land Reserves

3. CONTACT POINTS:

Federal departments and agencies:

Agriculture Canada

- Prairie Farm Rehabilitation Administration (PFRA)

Environment Canada, CWS, Sustainable Development Branch

Provincial ministries or departments:

Agriculture
Agriculture and Food
Natural Resources
Lands
Environment
Municipal Affairs
Integrated Resource Management committees and groups

Other:

Universities
Soil and Water Conservation Societies
Canadian Federation of Agriculture

APPENDIX 3.3

INFORMATION SOURCES - FOREST LAND

1. DATA AND MAPS - Land capability and use

1.1. Project or site-specific level:

- Provincial/territorial and local data bases.

1.2. Large-scale or policy level:

- FORSTATS - Canadian Forestry Service, Ottawa.
- CLI - Canada Land Inventory. Land Capability Classification for Forestry. Report No. 4, 1972, Lands Directorate, Environment Canada. CLI maps at the scale of 1:250,000.
- ELC - Ecological Land Classification. Environment Canada.
- NLUIS - Northern Land Use Information Series. Environment Canada, and DIAND.
- CLDS - Canada Land Data System. State of Environment Reporting Branch, Environment Canada.

2. LEGISLATION AND POLICIES

Federal:	**Agency:**
A National Forest Sector Strategy for Canada (1987)	CFS Canadian Forestry Forum, Canadian Council of Forest Ministers
Territorial Lands Act	DIAND

Provincial legislation (examples):

Forests Act
Lands and Forests Act
Environment and Land Use Act

3. CONTACT POINTS:

Federal agencies:

CFS	Canadian Forestry Service: Ottawa and regional offices
DIAND	Indian and Northern Affairs Canada: Ottawa and regional offices

Provincial agencies (examples):

Lands
Forests
Natural Resources
Municipal Affairs
Integrated Resource Management committees and groups
Forestry Service

Other:

Universities
Forestry companies
Forestry Research Institutes

APPENDIX 3.4

INFORMATION SOURCES - NON-RENEWABLE RESOURCE LAND

1. DATA AND MAPS

a) Land capability and use

Geological Survey of Canada (GSC), Department of Energy, Mines and Resources

- Canada Centre for Remote Sensing
- Polar Continental Shelf Project
- Canada Centre for Mapping
- Geophysical Surveys, Hazards and Terrain Sciences
- Canada Map Office
- Institute of Sedimentary and Petroleum Geology
- Atlantic Geoscience Centre
- Pacific Geoscience Centre

Canada Land Data System (CLDS), Environment Canada.

b) Mineral and Energy Policy

- Mineral and Metal Commodities Branch
- Mineral Strategy Branch
- Energy Policy Sector
- Ocean Mining Division
- National Energy Board

c) Canada Oil and Gas Lands Administration (COGLA)

2. LEGISLATION AND POLICIES

a) Federal:

Mineral and Metal Policy of the Government of Canada
Canada Land Surveys Act
Resources and Technical Surveys Act
Canadian Petroleum Resources Act
Oil and Gas Production and Conservation Act
Department of Energy, Mines and Resources Act
Government Organization Act
Offshore Mining Legislation (in drafting)
Northern Mineral Policy (see DIAND)

b) Provincial legislation (examples):

Coal Act
Gas Utility Act
Geothermal Resources Act
Hydro Power Measures Act
Mineral Act and Regulations
Mineral Prospectors Act
Mining (Placer) Act
Mines Act
Petroleum and Natural Gas Act
Petroleum Underground Storage Act
Public Lands Act
The Quarrying Regulations
Territorial Lands Act and Regulations

c) Federal/Provincial Agreements

Canada/Newfoundland Offshore Implementation Act
- Bill C-6 (federal)
- Bill 59 (provincial)

Canada/Nova Scotia Offshore Petroleum Resource Accord Implementation Act

3. CONTACT POINTS:

Federal agencies:

EMR Department of Energy, Mines and Resources:

- Office of Environmental Affairs
- Communications Branch

DIAND Indian and Northern Affairs Canada

EMR & DIAND: - Canada Oil and Gas Lands Administration

Provincial agencies (examples):

Mines
Mines and Energy
Energy, Mines and Petroleum Resources
Natural Resources
Geological Survey

Other:
Mining companies
Exploration companies

APPENDIX 3.5

INFORMATION SOURCES - LAND FOR TRANSPORTATION AND COMMUNICATION

1. DATA AND MAPS

Maps, drawings and site plans:

- Transport Canada; Ottawa and regional offices.
- Canada Ports Corporation
- Airport Authority

2. LEGISLATION AND POLICIES

Federal:	**Agency:**
Land Use in the Vicinity of Airports	Transport Canada: Aviation, Air Navigation System Requirement Branch

3. CONTACT POINTS:

Federal agencies:

Transport Canada
Airports Authority Group
Canada Ports Corporation
St. Lawrence Seaway Authority
Department of Communications

Provincial agencies (examples):

Transportation and Communication

APPENDIX 3.6

INFORMATION SOURCES - LAND FOR WATER CONSERVATION

1. LEGISLATION AND POLICIES

Federal:	**Agency:**
The Federal Water Policy (1987)	DOE/Inland Waters
Federal Policy on Wetland Conservation	DOE/Canadian Wildlife Service/Sustainable Development Branch
Policy for the Management of Fish Habitat	DFO
Federal Water Quality Guidelines	DOE/Inland Waters

2. CONTACT POINTS:

Federal agencies:

DFO — Department of Fisheries and Oceans

DOE — Environment Canada
- Inland Waters Directorate
  National Water Research Institute
  National Hydrology Institute
- CWS/ Sustainable Development Branch

Provincial agencies (examples):

Environment
Natural Resources
Lands
Municipal Affairs

Other:
Soil and Water Conservation societies

APPENDIX 3.7

INFORMATION SOURCES - HERITAGE LANDS

1. DESIGNATIONS AND ALLOCATIONS

A. Natural heritage - lands of scientific and ecological values

International:	**Agency:**
Man and the Biosphere Program (MAB)	Parks
World Heritage Sites (UNESCO)	
Wetlands of International Importance (Ramsar Convention)	CWS
International Biological Programme (IBP)	

Federal:	**Agency:**
National Parks	Parks
National landscapes, seascapes, and ecosystems	"
Canadian Landmarks	"
Heritage Rivers and Heritage Canals	"
National Wildlife Areas	CWS
Migratory Bird Sanctuaries	"
Game Sanctuaries	DIAND
National Forests	"

Provincial (examples):	
Ecological Reserves	Parks
Natural Areas	
Areas of Natural and Scientific Interest	
Wilderness Areas	
Provincial Parks	
Provincial Wildlife Areas and Sanctuaries	
Provincial Forests	
Palaeontological sites	

Land allocated in local, regional, or provincial planning and zoning processes.

B. Man-made heritage - land of historical and cultural values

International:
World Heritage Sites (UNESCO)

Federal:	
Archaeological Sites	Parks / Canadian Museum of Civilization (Archaeological Survey of Canada)
Heritage Buildings and Monuments	Parks / Federal Heritage Buidling Review Office
National Historic Parks and Sites	Parks
Sites of Historical and Cultural Value	Historical Sites and Monuments Board

Provincial (examples):
Heritage Sites
Archaeological Sites
Heritage Buildings
Sites of Cultural Value
Land allocated in local, regional, or provincial planning and zoning processes

C. Outdoor recreation - lands of recreational and aesthetic values

Federal:	
Heritage Rivers	Parks
Heritage Canals	"
National Parks	"
Agreements for Recreation and Conservation	DIAND

Provincial (examples):
Provincial Parks
Provincial Forests
Provincial Recreation Areas
Wilderness Areas
Land allocated in local, regional, or provincial planning and zoning processes

2. LEGISLATION AND POLICIES

Federal/International regulations and programs:

MAB - Man and the Biosphere Program
IBP - International Biological Program
UNESCO - World Heritage Sites
Ramsar Convention

Federal legislation:	**Protection category**
National Parks Act (1970) Agency: Parks	National Parks Natural Landscapes Natural Seascapes Natural Ecosystems National Historic Parks and Sites Canadian Landmarks Canadian Heritage Rivers Canadian Heritage Canals Canadian Heritage Buildings
Parks Canada Policy (1983) Agency: Parks	(same as above)
National Marine Parks Policy (1986) Agency: Parks	Marine Parks
Canada Wildlife Act (1973) Agency: CWS	National Wildlife Areas
Migratory Birds Convention Act (1917) Agency: CWS	Migratory Bird Sanctuaries

Territorial Lands Act Department: DIAND	Game Sanctuaries National Forests Agreement for Recreation and Conservation Program
Historical Sites and Monuments Act (1970) Board: HSMB	Sites of Historical and Cultural Value
Policy on Federal Heritage Buildings Agencies: FHBRO and Parks	Heritage Buildings
Federal Archaeology Policy Development Department: Communications Heritage Policy and Programs	Archaeological Heritage

Federal-provincial regulations and programs:

Trail development programs
Agreements for Recreation and Conservation (ARC)

Provincial legislation (examples):

Parks Act	Greenbelt Act
Environment and Land Use Act	Ecological Reserve Act
Wilderness Areas Act	Provincial Parks Act
Natural Areas Act	Land Act
Special Places Protection Act	Forests Act
Recreational Development Act	Wildlife Act
Heritage Conservation Act	

3. DATA AND MAPS

Land capability and use

CLI - Canada Land Inventory. Land Capability Classification for Outdoor Recreation. Report No. 6, 1969, Lands Directorate, Environment Canada. CLI maps at the scale of 1:250,000.

ELC - Ecological Land Classification. Environment Canada.

NLUIS - Northern Land Use Information Series. Lands Directorate, and DIAND.

CLDS - Canada Land Data System. Environment Canada.

ASC - Archaeological Survey of Canada. Canadian Museum of Civilization.

CHIN - Canadian Heritage Information Network. Department of Communications. The CHIN is accessible through ASC and the Canadian Museum of Civilization (see above).

4. CONTACT POINTS:

Federal departments, agencies and committees:

DOE	Environment Canada:	- Canadian Parks Service - Canadian Wildlife Service (CWS) - Sustainable Development Branch, CWS
DIAND	Indian and Northern Affairs Canada	
DOC	Department of Communications: Heritage Policy and Programs	
CMC	Canadian Museum of Civilization (Archaeological Survey of Canada)	
FHBRO	Federal Heritage Buildings Review Office	
HSMB	Historical Sites and Monuments Board	
CCEA	Canadian Committee on Ecological Areas	

Provincial ministries or departments (examples)

Integrated Resource Management committees and groups
Parks
Environment
Lands
Forests
Recreation
Culture
Wilderness/Natural Lands
Tourism
Municipal Affairs

Other:

Universities
Non-government Organizations

APPENDIX 3.8

INFORMATION SOURCES - HABITATS

1. DATA AND MAPS

Land capability and use

CLI - Canada Land Inventory for Wildlife. Land Capability Classification for Waterfowl, Report No. 16, 1981. Land Capability Classification for Ungulates, Report No. 17, 1980. Lands , Environment Canada. CLI maps at the scale of 1:250,000.

NLUIS - Northern Land Use Information Series. Environment Canada, and DIAND.

ELC - Ecological Land Classification. Environment Canada.

CLDS - Canada Land Data System. Environment Canada.

2. LEGISLATION AND POLICIES

International policies and agreements:

	Agency:	Category:
Ramsar Convention (1971)	CWS	Wetlands of International Importance, 30 sites
North American Waterfowl Management Plan (1986)	CWS	Waterfowl and wetlands

Federal:	Agency:	Category
Canada Wildlife Act (1973)	CWS	National Wildlife Areas
Guidelines for Wildlife Policy (1982)	CWS	Wildlife
Migratory Birds Convention Act (1917)	CWS	Migratory Bird Sanctuaries
Policy for the Management of Fish Habitat (1986)	DFO	Fish, water and habitat
List of Endangered Species in Canada	CWS and COSEWIC	Mammals, birds, reptiles, amphibians, fish and plants
Territorial Lands Act	DIAND	Game Sanctuaries

National Parks Act (1970)	Parks	National Parks; Natural Ecosystems, etc. See Heritage Lands, *Appendix 3.7*
Natural Areas of Canadian Significance	Parks	Representative landforms; natural heritage

Provincial legislation (examples):

Wildlife Act
Wildlife Conservation Act
Fish and Wildlife Act
Games and Fish Act

Provincial protected areas (examples):

Wildlife Management Areas
Migratory Bird Sanctuaries
Ecological Reserves
Games Reserves
Wildlife Areas and Sanctuaries
Wilderness Areas

3. ENDANGERED SPECIES - COSEWIC

The list of endangered species in Canada is determined by COSEWIC- the Committee on the Status of Endangered Wildlife in Canada.

The identified species are divided into four categories: **mammals; birds; reptiles, amphibians, and fish; and plants.** The status of species is given in five status categories: extinct, extirpated, endangered, threatened, or rare.

Definitions of status categories:

Extinct: Any indigenous species of fauna or flora formerly indigenous to Canada and no longer existing elsewhere.

Extirpated: Any indigenous species of fauna or flora no longer existing in the wild in Canada but existing elsewhere.

Endangered: Any indigenous species of fauna or flora whose existence in Canada is threatened with immediate extirpation or extinction throughout all or a significant portion of its range, owing to the actions of man.

Threatened: Any indigenous species of fauna or flora that is likely to become endangered in Canada, if the factors affecting its vulnerability do not become reversed.

Rare: Any indigenous species of fauna or flora that, because of its biological characteristics, or because it occurs at the fringe of its range, or for some other

reason exists in low numbers or in very restricted areas in Canada, and so is vulnerable, but is not a threatened species.

4. CONTACT POINTS:

Federal departments and agencies - Ottawa and regional offices:

DOE	Environment Canada, Canadian Wildlife Service and Canadian Parks Service
COSEWIC	Committee on the Status of Endangered Wildlife in Canada. Contact the Canadian Wildlife Service (CWS).
DFO	Department of Fisheries and Oceans.
DIAND	Indian and Northern Affairs Canada

Provincial ministries or departments (examples):

Wildlife
Lands
Forests
Environment
Parks
Natural Resources
Natural Areas
Municipal Affairs
Integrated Resource Management committees and groups

Other (examples):

Canadian Wildlife Federation
Wildlife Habitat Canada
Ducks Unlimited
Universities
Canadian Nature Federation
Federation of Ontario Naturalists

APPENDIX 3.9

INFORMATION SOURCES - HAZARD LAND

1. DATA AND MAPS

Flood Risk Maps, Environment Canada/Inland Waters, in co-operation with provincial agencies.

Provincial/regional information, for example:Water Erosion Potential in Soils of Alberta

2. LEGISLATION AND POLICIES

Federal:	**Agency:**
Flood Control And Flood Damage Reduction Program	DOE/Inland Waters Public Works Canada

Provincial policies/legislation (examples):

Flood Plain Planning Policy Statement

3. CONTACT POINTS:

Federal agencies:

Environment Canada
- Inland Waters
- Canadian Wildlife Service
- Environment Protection
- Atmospheric Environment Service

Energy, Mines and Resources (seismic information)

Provincial agencies (examples):

Environment
Natural Resources
Municipal Affairs

APPENDIX 3.10

INFORMATION SOURCES - LOCAL, REGIONAL AND PROVINCIAL CONCERNS

1. DATA, MAPS AND PLANNING PROCEDURES

Northern Land Use Planning, Indian and Northern Affairs Canada, regional offices (Whitehorse, Yukon, and Yellowknife, NWT)

See also the local, regional, or provincial/territorial planning office concerned.

Provincial example: Alberta Integrated Resource Planning.

2. LEGISLATION AND POLICIES

Provincial legislation (examples):

Planning policies and legislation

3. CONTACT POINTS:

Federal agencies:

DIAND - Indian and Northern Affairs Canada; Northern Affairs Program.

DOE - Environment Canada, Canadian Wildlife Service, Sustainable Development Branch.

Provincial agencies and interdepartmental committees (examples):

Municipal Affairs
Urban Affairs
Natural Resources
Environment
Renewable Resources
Resource Planning
Interdepartmental Planning Board
Land Use Policy Committee
Land Use Commission
Interdepartmental Land Use Committee

APPENDIX 4

ADDITIONAL INFORMATION ON LAND-USE IMPACTS

IDENTIFICATION OF LAND-USE IMPACTS

The identification of land-use impacts is presented in the publication

The Identification of Impacts of Federal Programs on Land Use: A Manual for Program Managers.

(Lands Directorate, Environment Canada, 1982)

- The manual will assist managers in determining whether or not their programs have the potential to influence land use. It is designed to make federal managers aware of the possible land-use effects of the programs they administer, with the purpose of helping them follow the guidelines of the Federal Policy on Land Use.

  According to this Manual, managers are asked to consider effects such as:
  - economic stimulus to land development by transportation facilities;
  - competition for land use between agriculture, forestry, housing, and other uses;
  - degradation of land through poor cultivation practices;
  - contamination of land from hazardous wastes;
  - research into land characteristics.

POTENTIAL LAND-USE IMPACTS: EXAMPLES

Examples of potential land-use effects are presented in the publication

Federal Programs with the Potential to Significantly Affect Canada's Land Resource ("Top 100")

(Lands Directorate, Environment Canada, 1986)

- The purpose of the "Top 100" is to identify and describe the federal programs with the most potential to affect Canada's land resource significantly. The report outlines the functions and possible land-resource effects of approximately 100 federal programs, which appear to have:
  - the greatest impact on the use, management, and potential of the nation's land resource, or
  - the greatest potential to affect the implementation of the Federal Policy on Land Use.

  The report indicates the type and range of federal activities that can significantly affect Canada's land resource, and identifies the federal departments and programs most concerned.